

SCREENING SITE INSPECTION  
LETTER REPORT

Superfund Records Center

SITE: Boulter

BREAK: 1.3

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BOULTER FARM  
CUMBERLAND, RHODE ISLAND  
CERCLIS No. RID 980672620



SEMS DocID

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Introduction

The Rhode Island Department of Environmental Management (RIDEM) Division of Air and Hazardous Materials (DAHM) conducted a Screening Site Inspection (SSI) on the Boulter Farm site in Cumberland, Rhode Island. SSI activities at the Boulter Farm site began in March 1987. The Preliminary Assessment (PA) on the site was performed by the United States Environmental Protection Agency (USEPA) Waste Management Branch (WMB) in 1981; it gave a low priority for a site inspection.

Background information used in the generation of this report was obtained through file searches conducted at the RIDEM Offices and from a groundwater contamination study written for the Massachusetts Department of Environmental Quality Engineering. Information was also collected during an onsite reconnaissance.

This package complies with requirements set forth under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended; commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other USEPA regulations such as: the Resource Conservation and Recovery Act (RCRA), or other federal, state, or local regulations. SSI's are only intended to provide a preliminary screening of sites with a limited sampling effort and facilitate USEPA's assignment of site priorities. They are limited efforts and are not intended to supplant more detailed investigations.

Site Description

The Boulter Farm site is located northwest of Curran Road (Plat 19, Lots 362, 363, 364, 365, and 366) in Cumberland, Rhode Island near the Massachusetts state line (Figure 1). From 1946-1976, portions of the site were used for a pig farm, a gravel pit, an auto salvage yard, and a solid waste dump (Cullinane, 1970-1976; Lazarus, 1987d).

Information concerning the Boulter Farm Site Description was obtained through a site reconnaissance conducted by RIDEM personnel on 1 December 1988 and aerial photographs taken of the site in 1987 (Wofford, 1988; ESS, 1987c). The approximately 20 acre site is bordered to the north by forest, to the east and south by an auto salvage yard (Joe's Auto Salvage) and residential areas, and to the west by gravel pits and power lines. Millers River is

located west of the site and flows in a southerly direction. The river flows beneath the ground surface for approximately one-quarter mile at its closest point to the site. (USGS, 1975).

Several interconnected ponds are located in the front section of the site west of Joe's Auto Salvage and in the back section of the site northwest of Joe's Auto Salvage (Figure 2). The ponds drain into a culvert which runs along the western border of the auto salvage yard and discharges into Millers River approximately 1000 feet south of the site. A former lagoon is located in the back section of the site in close proximity to one of the interconnected ponds. An open field which has a circle of stressed vegetation is in the back section of the site north of the auto salvage yard. Numerous abandoned cars from the auto salvage yard are being stored in an area which extends 75-100 feet into the open field. To the back of the open field is another pond and a tank with an approximate capacity of 10,000 gallons. In addition a damaged tank with an approximate capacity of 1,000 gallons, barrels, septage, fiberglass, oil, and scrap metal have been observed during previous inspections of the site (Donovan, 1972; Cullinane, 1974, 1975, 1976; Majkut, 1980; Muller, 1980, 1981b; Leo, 1985; ESS, 1987a, 1987b).

Boulders are located at the site entrance on Curran Road; however, they provide an ineffective barrier against auto access (ESS, 1987b).

Water supply wells which service the cities of Pawtucket and Cumberland, Rhode Island and North Attleborough, Massachusetts are located within a four mile radius of the site (Lazarus, 1987b, 1987c, 1987d, 1987e). Water from these supply wells combines with other sources to service a total of approximately 147,000 people. Figure 3 shows the location of public water supply wells in North Attleborough, Massachusetts and nine of the eleven public water supply wells in Pawtucket, Rhode Island.

#### Site Activity/Site History

The site was owned by the Boulter family (Samuel P. and Maria I.) from 1946 until 1983 when it was sold to Leo R. and Michele L. Fontaine. The Fontaines sold lot 363 to Joseph Ferreira in 1983 and lots 362, 364, and 365 to LM Nursing in 1985. In 1985, lot 366 was formed out of lot 363 and purchased by JIF Property Inc.

Samuel Boulter operated a pig farm at the site in the 1940's. In the 1950's part of the property was excavated for sand and gravel some of which was used for the construction of Interstate Highway 295. In the 1960's, Boulter demolished and stored junk cars at the site. He operated a solid waste dump at the site from the late 1960's until 1976 (Cullinane, 1968-1976). The dump extended across the Rhode Island border into Massachusetts. The exact size and location of the dump is not known.

The dump was cited numerous times by the Rhode Island Department

of Health, Division of Solid Waste Management (RIDOH) from 1970 through 1976 for failure to provide daily cover (Cullinane, 1970-1976). Furthermore, in 1970 the RIDOH noted the dump was openly burning demolition waste (Cullinane, 1970a). The Boulter Farm dump has also been cited by the Massachusetts Department of Health for solid waste violations (Donovan, 1972).

At least five fires have been reported at the Boulter Farm site. Four of the fires were brush fires; however, the most recent reported fire occurred on 13 April 1981 and involved 25 to 30 steel and fiber board barrels containing paint-like substances (Cullinane, 1970b, 1974a, 1974b, 1975; Muller, 1981a, b). One fire fighter was hospitalized for chest pains after the incident but no clear connection was ever made between the symptoms and the materials involved in the fire. Paint sludge samples were obtained from two of the barrels by RIDEM/DAHM personnel and analyzed for EPTOX metals (RIAL, 1981). Test results revealed levels of arsenic (0.026 mg/l), barium (0.8 mg/l), chromium (0.29 mg/l), and lead (1.5 mg/l).

Two old tanks and numerous corroded barrels have been discovered at the site (Majkut, 1980, Muller, 1981a; Leo, 1985; RIDEM, 1985, 1987a, 1987b). The barrels were discovered from 1980 through 1985 during RIDEM/DAHM inspections and contained residual acids. No sampling or remediation has been conducted with regard to the tanks or acid barrels. Additionally the Town of Cumberland received an anonymous letter in 1980 alleging that in approximately 1970 the Sayles Finishing Company had buried drums containing lacquer, acetone, acetate, and urethane in a gravel pit at the end of Curran Road (Anonymous, 1980). In 1981 the letter was received by RIDEM during a joint field investigation conducted by RIDEM, Division of Air and Hazardous Materials and the Pawtucket Water Supply Board (Muller, 1981a). The investigation was unable to conclude whether the Sayles Finishing Company drums were buried on or near Boulter Farms.

Two lagoons have been reported at Boulter Farm. Lagoon #1 was discovered during a site inspection by RIDEM/DAHM personnel in 1985 (Leo, 1985) (Figure 2). The lagoon had an approximate area of 20,000 square feet and a depth of 2 feet (Leo, 1985; Lazarus 1987f). Photoionization detector (HNU) readings and two samples were obtained from the lagoon (see Sampling History Section and Table 5) (Leo, 1985; Hartley, 1985). The total volume and exact composition of wastes disposed of at the lagoon is not known. In 1987 RIDEM/DAHM personnel observed that the lagoon had been covered with gravel (ESS, 1987a, 1987b). Lagoon #2 which is located in the Massachusetts portion of Boulter Farm, was observed by Whitman & Howard, Inc. while conducting a groundwater contamination study for the Massachusetts Department of Environmental Quality Engineering (Whitman & Howard, 1986). The lagoon was a small depression filled with water which had no inlet or outlet. The bed of the lagoon was covered with approximately 4 inches of leaves and soil which were saturated with tarry substances having oily odors.

On 15 June 1976 the Rhode Island Department of Health (RIDOH) inspected the Boulter Farm site and observed an area being used for the dumping of septage near the Rhode Island-Massachusetts state line (Cullinane, 1976a). On 22 June 1976, the RIDOH ordered Sam Boulter to prevent further disposal of septage at the site (Maine, 1976).

### SAMPLING HISTORY

Prior to SSI activities, the site had been inspected by the RIDOH numerous times from 1968 to 1976 and in 1985, by the RIDEM/DAHM in September 1980, April 1981, and October 1985; and by the EPA, Region 1 in October 1981. Samples from various parts of the site were collected by RIDOH in 1985, and RIDEM/DAHM in 1985. The site has also been inspected by private firms: Whitman and Howard in 1984 and Environmental Resource Associates in 1987.

Whitman and Howard conducted a hydrogeologic study in 1984-1986 for the Massachusetts Department of Environmental Quality Engineering in an attempt to determine the contamination source of the North Attleborough Adamsdale Well which has had persistent low level volatile organic compound (VOC) contamination since 1980 (Table 1) (Whitman and Howard, 1986). The study area covered approximately 1.2 square miles in Massachusetts and Rhode Island including the Boulter Farm Site.

As a part of their study Whitman and Howard collected and analyzed sediment samples, surface water samples, and groundwater samples from the study area. The only samples collected from the Boulter Farm Site were two sediment samples which were obtained from the area of the two lagoons. (Figure 4 and Table 2). The sampling locations and results for other samples in the study area are presented in Figure 4 and Tables 3 and 4 respectively.

In 1985, the RIDOH collected and analyzed a surface water sample from the culvert near Joe's Auto Salvage Yard (Table 5) (RIDOH, 1985). The sampling results revealed the presence of volatile organic compounds. As a result of the analysis, the RIDEM, DAHM collected and analyzed a sludge sample and a water sample from Lagoon #1 (Table 5). Photoionization detector (HNU) readings were also obtained and registered from 40 to 60 ppm (benzene equivalents) in areas just below the surface of Lagoon #1 (Hartley, 1985; Leo, 1985).

### SSI SAMPLING

General observations made by RIDEM/DAHM personnel on 23 and 28 April 1987 during field reconnaissance in conjunction with SSI preparations included (Figure 2):

- one oil stained area that had burned and a corroded and damaged 1000 gallon tank located near Pond #2
- a pile of debris mainly consisting of fiberglass, cardboard,

- and wood located near Pond #2;
- approximately 20 empty 55-gallon corroded and damaged plastic and metal drums located in the acid barrel region;
  - a circle of stressed vegetation approximately 30 feet in diameter located in the southeast corner of the field; and
  - a black oily sludge approximately three feet below the surface in the area of Lagoon #1.
- (ESS, 1987a, 1987b).

A total of fifteen samples were collected during the SSI sampling rounds (Figure 5). Complete analytical results from the sampling rounds are presented in Tables 6 through 8 (RIAL, 1987). The SSI sampling strategy called for four surface water samples, four sediment samples, and seven soil samples. Three of the soil samples were composite samples. The samples were composited in the laboratory; however, the methods used for compositing could not be verified. A background sample was not obtained. The samples were analyzed for the following:

- Surface Water (SW) - total metals, total organic compounds (TOC), volatile organic compounds (VOC)
- Sediment (SD) - 8 EPTOX primary drinking water metals, PCB/Pesticides, oil and grease (O&G)
- Soils (SS) - 8 EPTOX primary drinking water metals, PCB/Pesticides, O&G (RIDEM, 1987).

Surface water samples had no detectable levels of metals. Total organic carbon was detected in each of the surface water samples and ranged from 6 - 8 mg/l. Only one surface water sample had detectable levels of a volatile organic compound (3 ppb methylene chloride).

Oil and grease was detected in each of the sediment samples at concentrations ranging from 0.02 - 0.05 percent. Only one of the four sediment samples had detectable concentrations of any of the other requested parameters. Mercury was detected in the sediment sample from Pond #1 at a concentration of 0.001 mg/l.

Soil samples, however, had higher detectable concentrations of contaminants. Oily sludge from the oil stained area (SS-1) and the former lagoon area (SS-4) contained polychlorinated biphenyls (Arochlors 1242 and 1260) at a maximum concentration of 28 ppm, lead (maximum concentration 0.73 mg/l), and oil and grease (maximum concentration 26.7%). SS-4 also contained several volatile organic compounds (trans-1,2-Dichloroethylene, 1,1,1-trichloroethane, trichloroethylene, tetrachloroethylene, toluene, and xylenes) in the ppm range and lindane at 0.003 mg/l. Cadmium was detected in the soil from the acid barrel area (SS-8, SS-8 Duplicate) at 0.01 mg/l. Barium (1.31 mg/l) was found in soil from the gravelly pond area close to Curran Road and Joe's Auto Salvage (SS-7) (ESS, 1987b; Rhode Island Analytical Laboratories, 1987).

Following the SSI sampling activities, LM Nursing Services Inc. retained Environmental Resource Associates to perform an environmental site assessment of their portion of the Boulter Farm

Site (Plat 19, Lots 362, 364, and 365) (ERA, 1987). In June 1987, ERA installed three groundwater wells at the Boulter Farm site (Figure 6). In July 1987, ERA collected three groundwater, one surface water, and one sediment sample (Figure 6). Groundwater and surface water samples were analyzed for volatile organic compounds and the sediment sample was analyzed for EPTOX metals. The only volatile organic compounds detected in the groundwater and surface water samples were methylene chloride and toluene (Table 9). The sediment sample showed no detectable levels of the 8 EPTOX primary drinking water metals. Subsequent resampling of the groundwater in August, 1987 showed no detectable levels of methylene chloride.

#### GROUNDWATER PATHWAY

The local topography consists of hills which vary in elevation from 60 feet National Geodetic Vertical Datum (NGVD) at Robin Hollow Pond approximately 2400 feet south of the site up to 250 feet NGVD approximately 1500 feet north of the site. Site elevations range between 100 and 160 feet NGVD and generally slope in a southerly direction (USGS, 1975).

Soil at the site is classified as Udorthents-Urban Land Complex (moderately well drained to excessively well drained soils that have been disturbed by cutting or filling, and areas that are covered by buildings and pavements). Soil adjacent to the site is classified as Hinckley gravelly sandy loam. To the north, however, where bedrock is at the surface, the soil is classified as Canton-Charlton-Rock outcrop complex (well drained, coarse loam) (USDA, 1981).

The geology of the site differs on the northern and southern portions. The general boundary between the two areas is at Pond #3, adjacent to the auto salvage yard. The northern part is characterized by Wamsutta formation bedrock (red conglomerate, sandstone, and shale, very irregular color, bedding and degree of sorting), with occasional outcrops at the ground surface. The saturated thickness consists of glacial till and ranges from zero to ten feet. The southern part is composed of outwash deposits overlaying Pondville conglomerate and Rhode Island formation bedrock (grey to black sedimentary rocks, including beds of conglomerated, sandstone, shale, black shale and coaly material). The saturated thickness ranges from 10 to 40 feet (USGS 1949a, 1949b). Depth to groundwater ranges from zero to sixteen feet below the ground surface (USGS, 1974). Transmissivity in the area is approximately 13,000 ft /day.

Regional groundwater flow appears to be southerly towards Robin Hollow Pond and ultimately to the Blackstone River. The Boulter Farm Site is located approximately 500 feet from an unnamed valley aquifer which straddles the Rhode Island - Massachusetts border. The site does lie within the aquifer's drainage basin (Blackstone River Basin). The aquifer generally follows the path of Abbott Run flowing from north to south. The unnamed aquifer is approximately

2000 feet wide, but the drainage basin ranges between approximately 3000 feet wide at Robin Hollow Pond to approximately 10,000 feet wide at the beginning of Abbott Run (USGS, 1974; Whitman and Howard, 1986).

Numerous supply wells lie in the unnamed valley aquifer within four miles of the Boulter Farm Site including the Adamsdale Well (North Attleborough); the Kings Grant Well (North Attleborough); Pawtucket Wells Numbers 1 - 9 (Pawtucket); and the Abbott Run Valley Road Wells (Cumberland) (Lazarus, 1987b, 1987c, 1987d, 1987e). The Adamsdale Well is a public supply well which combines with other sources in North Attleborough to service approximately 21,000 people. The King's Grant Well is owned by the King's Grant Company and serves a North Attleborough housing development of approximately 950 people. The Pawtucket supply wells are used in the summer time to augment the City of Pawtucket's surface water supply. The Pawtucket water supply services a total of approximately 105,000 people. The Abbott Run Valley Road Wells are two public supply wells which combine with other sources in Cumberland to service approximately 20,000 people. The nearest supply wells to Boulter Farm are the Adamsdale Well and the King's Grant Well which are both located approximately one-half mile south of the site.

In 1984-1986, Whitman and Howard studied the persistent VOC contamination found in the Adamsdale Well by installing piezometers, monitoring wells, staff gages, and completing 5700 feet of seismic traverse (see results in Sampling and Inspection History Section) (Whitman and Howard, 1986). As a part of this study, Whitman and Howard reported the following information concerning the geology of the unnamed valley aquifer which supplies water to the well. The aquifer system near the well contains two aquifers: a lower aquifer up to 45 feet thick and an upper aquifer up to 30 feet thick. The two aquifers are separated in more than half the area near the well by silt and clay. In the areas where silt and clay do not intervene the aquifers are in direct contact with one another.

The Whitman and Howard study concluded that a low level VOC plume was present which was about 500 to 1,000 feet wide and generally followed the center and deepest part of the aquifer from north of King Grant's Well to south of Pawtucket Well Number 9. A second smaller plume comes from the Miller's River area, south of Boulter Farm.

Whitman and Howard originally considered Boulter Farm a probable source of VOC contamination; however, following their studies, they reported that Boulter Farm did not appear to be related to the VOC plumes which were present. The report stated that this did not necessarily preclude the farm from past releases. The report concluded that multiple minor sources of VOCs are a probable cause of the VOC contamination in the Adamsdale Well.

VOC contamination has also been detected at three of the Pawtucket

supply wells (Pawtucket Wells #1, #8, and #9) and the Kings Grant Well (Wofford, 1989a,b,c). The Pawtucket Well #1 was closed after trichloroethylene was detected at 5 ppb in May 1987. Pawtucket Well #9 showed low level VOC contamination (3.0 ppb chloroform and 3.0 ppb 1,1,1-trichloroethane) in 1983 and Wells #8 and #9 showed low level VOC contamination (1 - 2 ppb) in 1988-1989. The following contaminants were detected in 1988-1989: trichloroethane, chloroform, and dibromomethane. No contamination was detected in the latest sampling round for either of the wells (Pawtucket Well #8 - July 1989; Pawtucket Well #9 - April 1989). VOCs were detected in the Kings Grant Well in 1980 (2.0 ppb dichloroethane, 10.4 ppb 1,1,1-trichloroethane, and 0.4 ppb trichloroethylene) and 1984 (2.6 ppb trichloroethane). Contaminants have not been detected at the well since 1984.

#### SURFACE WATER PATHWAY

Surface water in the Boulter Farm area flows in a southerly direction. Surface water bodies within two miles of the site include: Abbott Run (Class "A"), Robin Hollow Pond (Class "A"), Happy Hollow Pond (Class "A"), Blackstone River (Class "C"), and Howard Pond (Class "A") (Figure 1). A Class "A" designation indicates water is suitable for water supply and all other water uses. A Class "C" designation indicates water is suitable for fish and wildlife habitat and for industrial processes (RIDEM, 1975).

Surface water bodies on the Boulter Farm Site consist of numerous small interconnected ponds. Surface water flows through the system of small ponds into an unnamed brook that borders the site on the eastern boundary by Joe's Auto Salvage. The unnamed brook discharges approximately 1000 feet south of the site into Millers River. Water from Millers River flows into Robin Hollow Pond and then into Happy Hollow Pond which is located one and one-half miles from the site. Treated water from Happy Hollow Pond is used by the City of Pawtucket and services approximately 105,000 people when combined with other water sources.

There is not a critical habitat for endangered species near the Boulter Farm area (Lazarus, 1987a)

#### AIR PATHWAY

At least five fires have occurred at the site. The most recent fire occurred in 1981 and involved 25 to 30 drums which may have contained paint pigments.

No air monitoring has been conducted at the site, however, based on existing site conditions, no evidence indicating a potential for any releases of contamination into the air exists.

#### ON-SITE EXPOSURE PATHWAY

Soil samples collected onsite have indicated the presence of PCBs, lead, oil and grease, VOCs, and base, neutral and acid extractable



compounds. Surface water samples from the brook draining the site, from Pond #4, and from the culvert near Joe's Auto Salvage have shown low level VOC contamination.

The site is accessible by foot from all directions. Boulders are located at the site entrance on Curran Road; however, they provide an ineffective barrier against auto access.

A private residence is located adjacent to the site. The residential population within one mile of the site is approximately 1640 (USGS, 1975).

### CONCLUSIONS

Regional groundwater flow away from the site appears to be southerly towards Robin Hollow and Happy Hollow Pond, the Adamsdale Well, and Pawtucket Wells Numbers 1 - 9 which are public water supplies servicing a total of 126,000 people. A private firm conducting a hydrogeologic study for the Massachusetts Department of Environmental Quality Engineering in 1984-1986 reported that a low level VOC plume was present which followed the center of an unnamed aquifer from north of King's Grant Well to south of Pawtucket Well Number 9. The private study concluded that the Boulter Farm Site is not a probable source of the current VOC plume.

Surface water flow away from the site also appears to be southerly towards Robin Hollow and Happy Hollow Ponds. Water from Happy Hollow Pond is treated and used in combination with other sources to service the City of Pawtucket. Analysis of onsite surface water samples has indicated some low level VOC contamination.

At this time no evidence exists indicating the potential for a release of contamination into the air.

Soil samples collected onsite showed levels of PCB, lead, VOCs, and base, neutral and acid extractable compounds in the ppm range and oil and grease in the percent range. Residential areas border the site and site access is unrestricted.

Based upon these facts and in order to assess the site's potential hazard more accurately, a Listing Site Inspection (LSI) is recommended. The LSI should focus on the portions of the site for which contaminants have been detected specifically Plat 19, Lots 366 and 363.

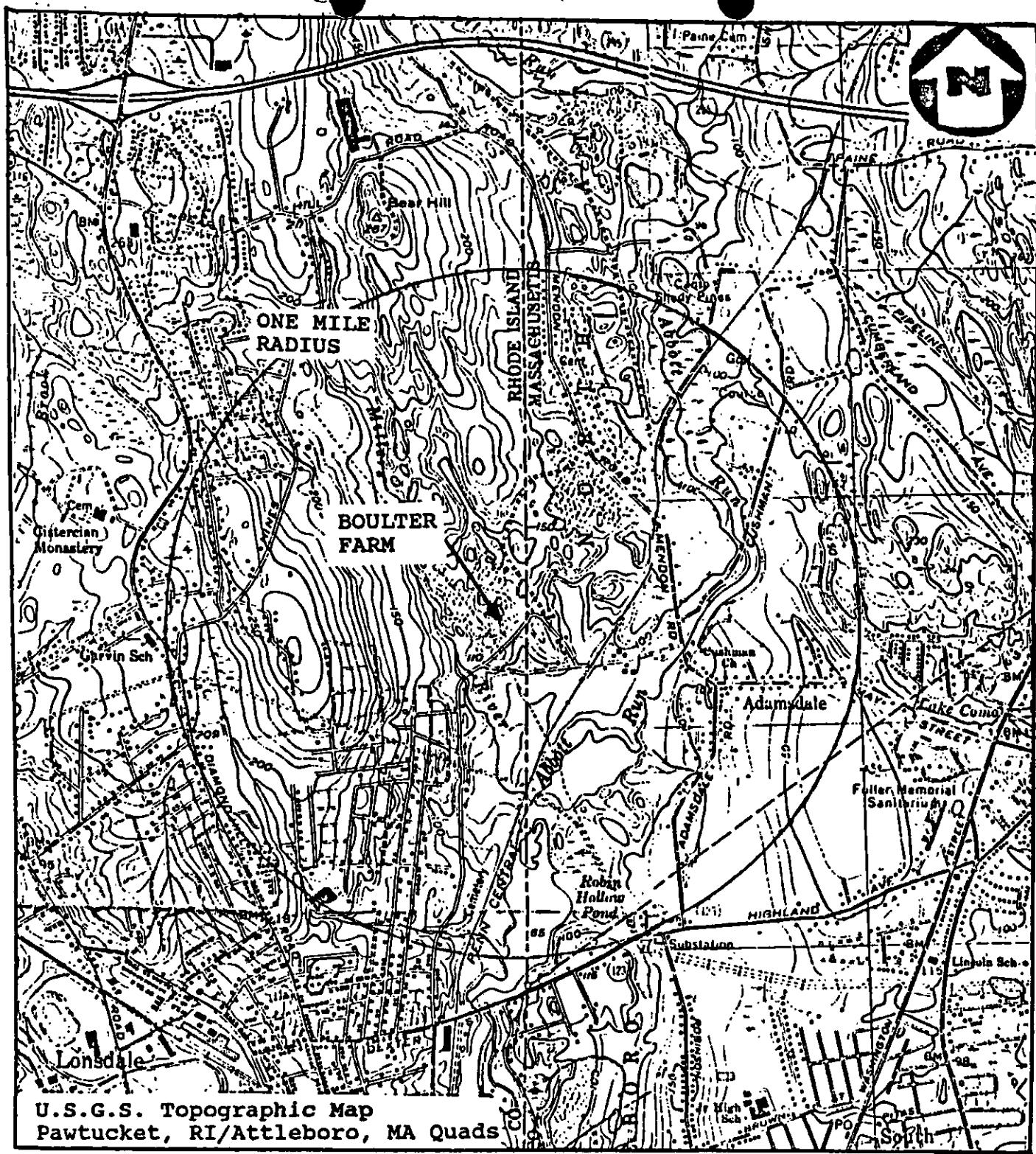
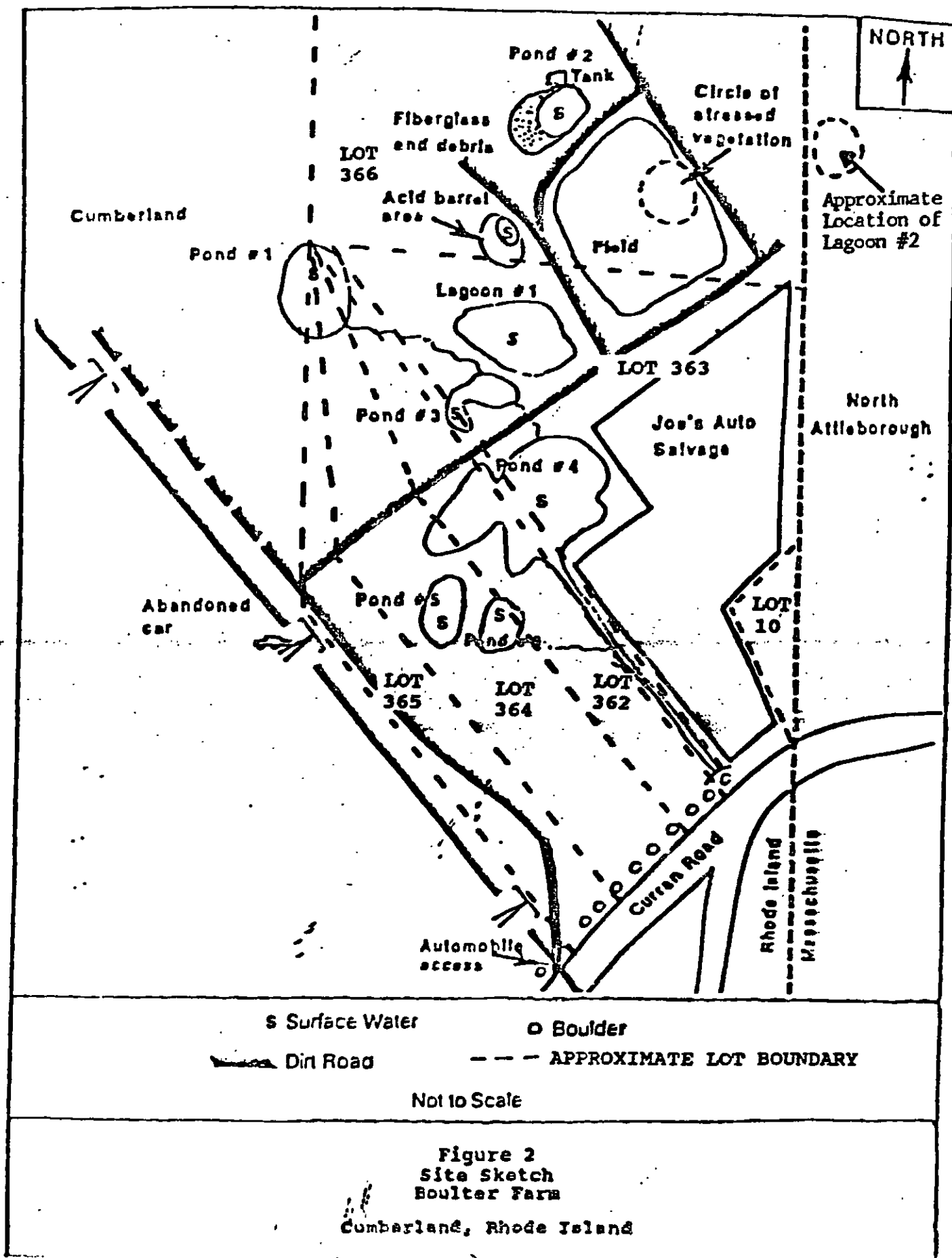


Figure 1-LOCUS PLAN  
Boulter Farm  
Cumberland, Rhode Island



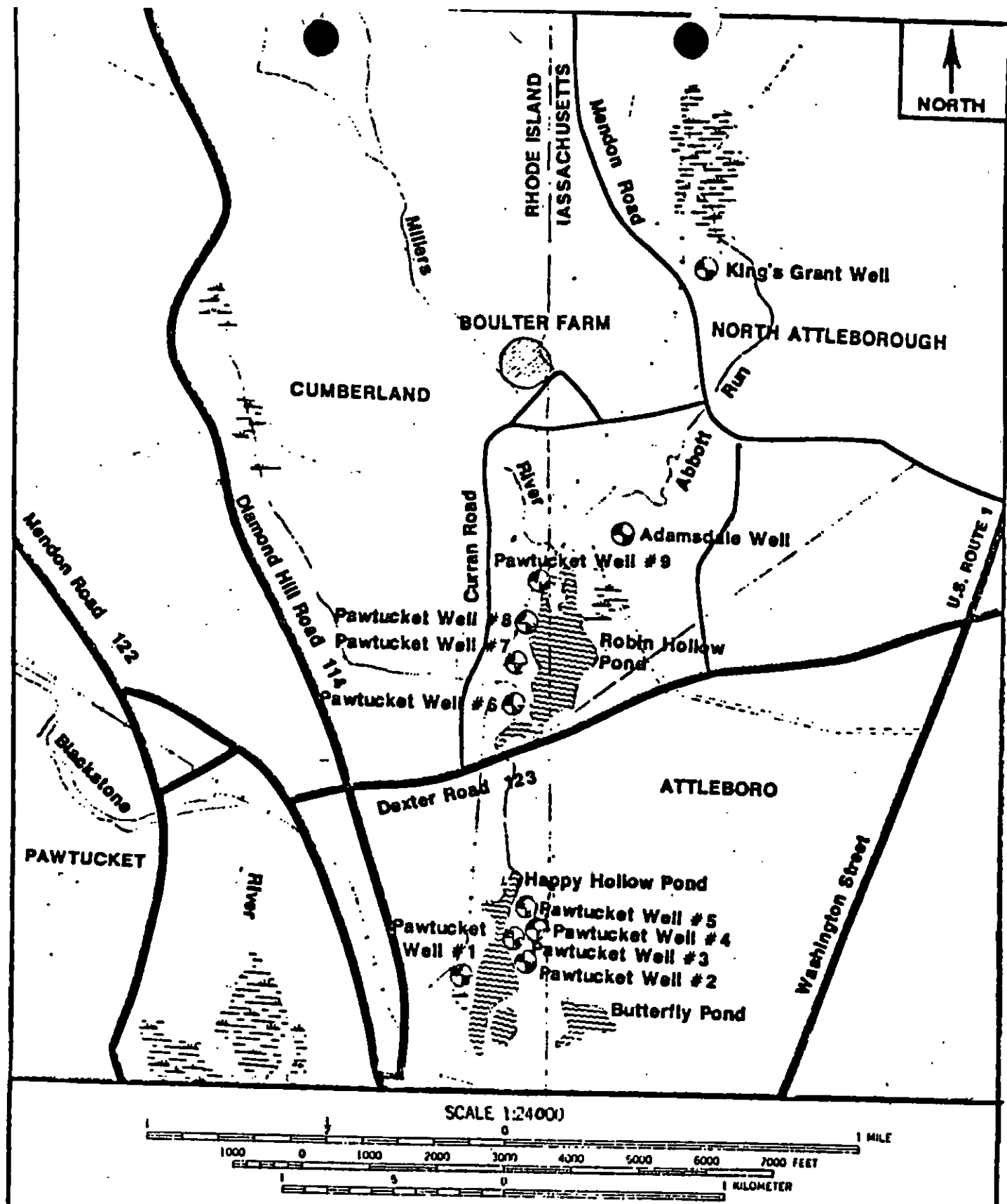
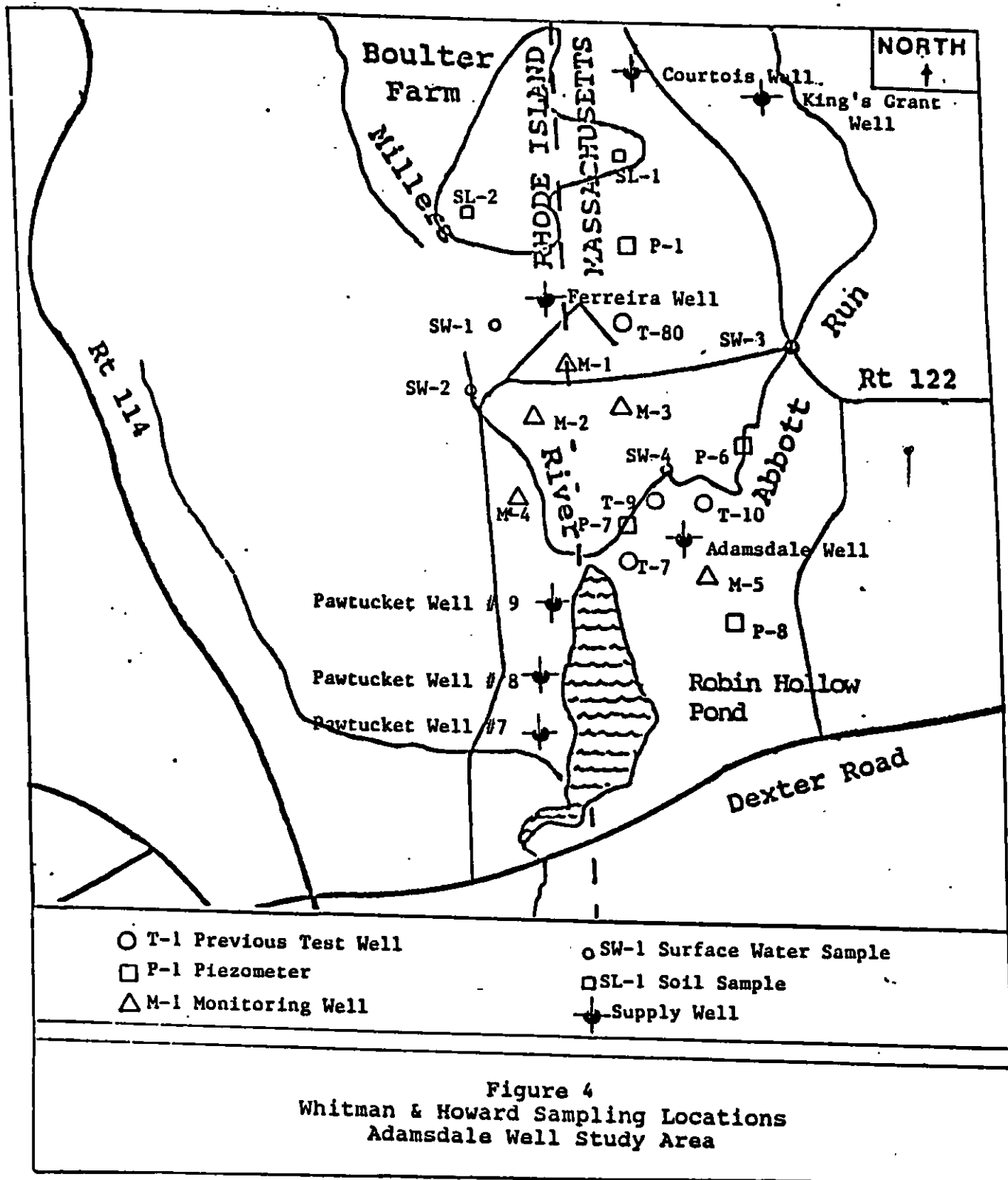
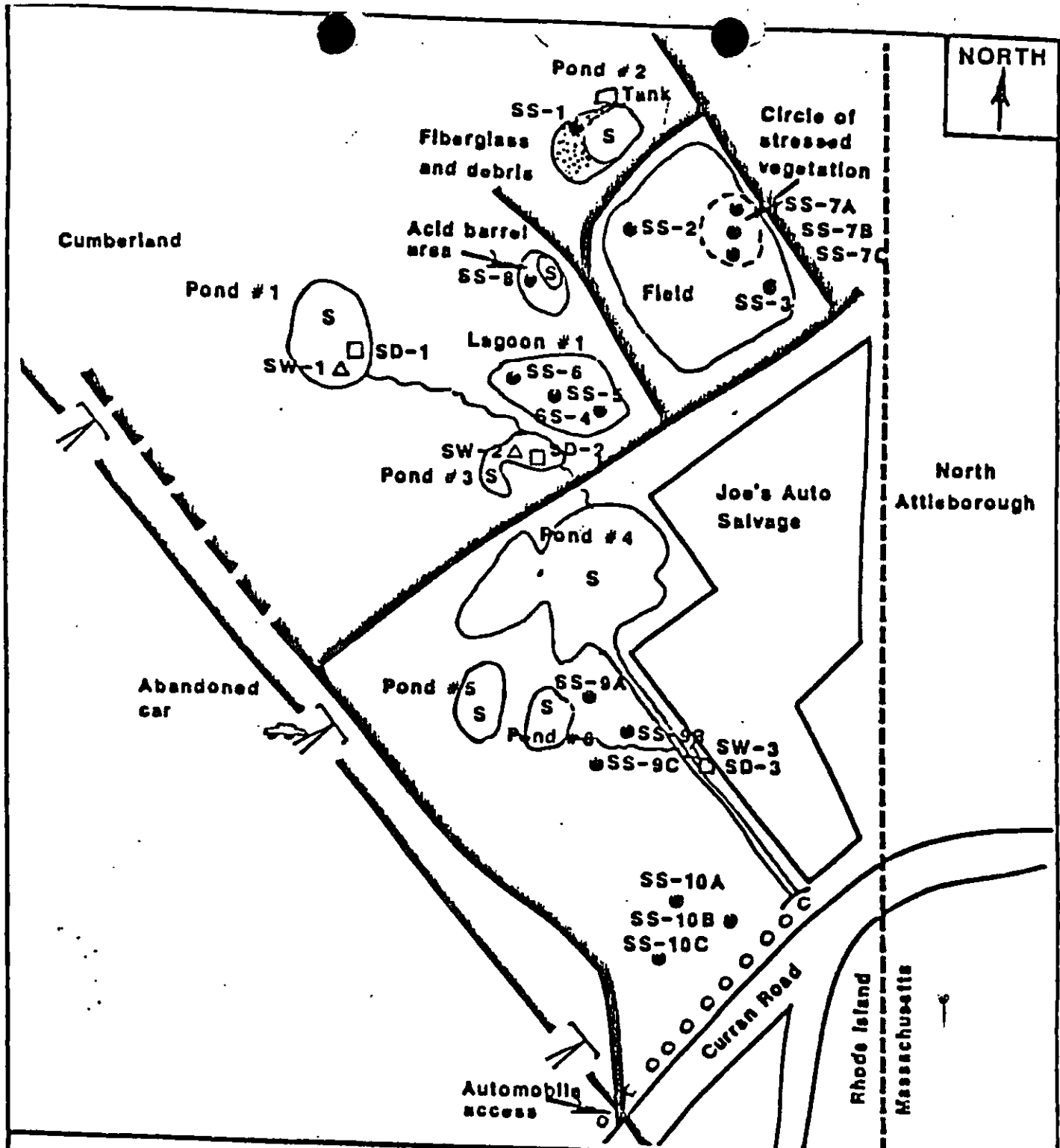


Figure 3  
Public Supply Wells  
Within Two Mile Radius of  
Boulter Farm Site  
Cumberland, Rhode Island

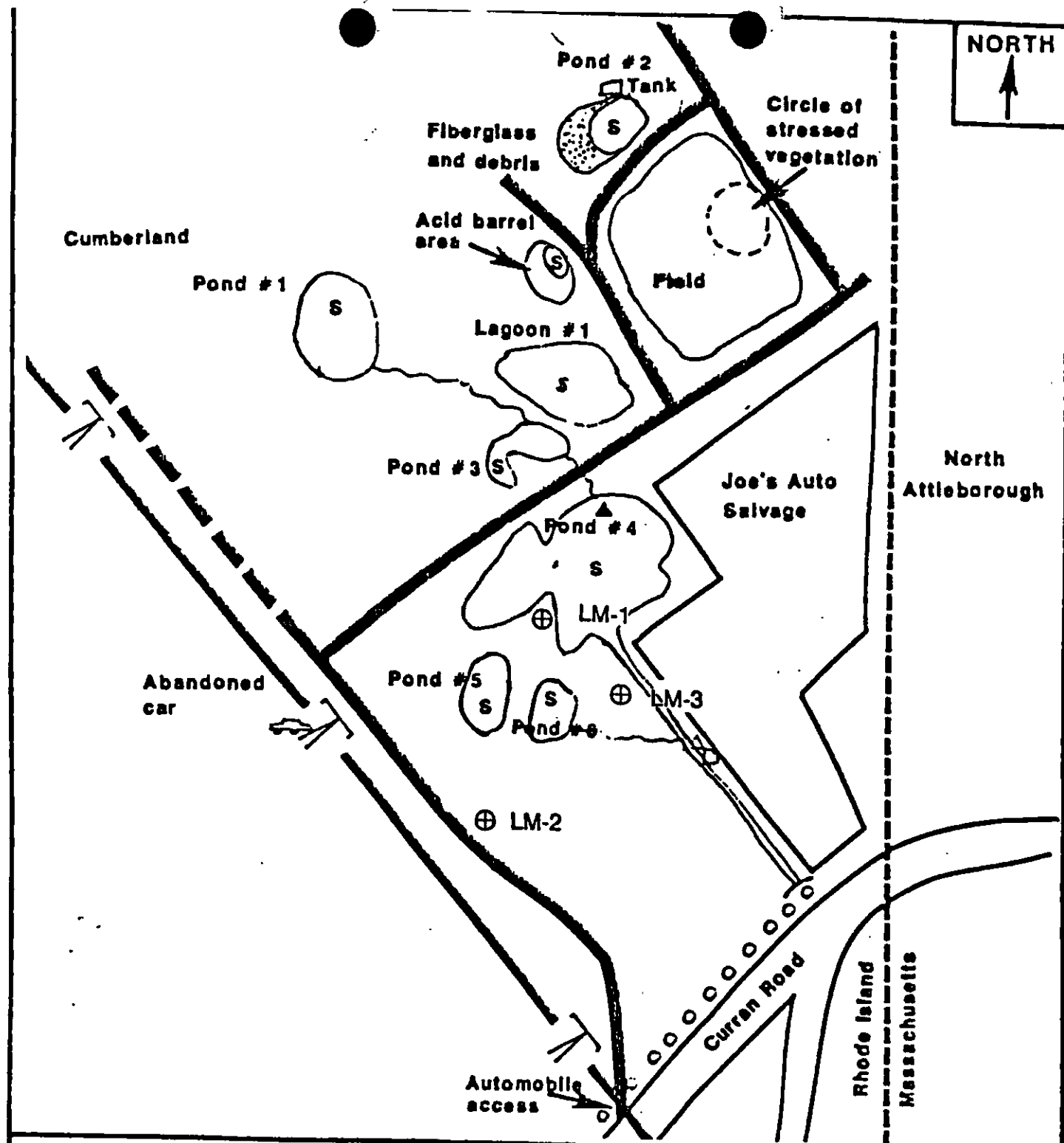




- |                        |                   |
|------------------------|-------------------|
| S Surface Water        | □ Sediment Sample |
| Δ Surface Water Sample | ● Soil Sample     |
| — Dirt Road            | ○ Boulder         |

Not to Scale

Figure 5  
 RIDEM/SSI Sampling Locations  
 Boulder Farm  
 April 23, 28, 1987  
 Cumberland, Rhode Island



S Surface Water  
 ▲ Surface Water Sample  
 — Dirt Road  
 ⊕ LM Nursing Monitoring Well  
 ○ Boulder  
 Not to Scale

Figure 6  
 Environmental Resource Associates  
 Sampling Locations  
 Boulter Farm  
 July 2, 1987

Cumberland, Rhode Island

Table 1\*  
ADAMSDALE WELL  
CONTAMINATION BY VOLATILE ORGANIC COMPOUNDS  
CONCENTRATIONS IN ug/l

	1980			1984		1985	
	Apr 24	May 14	Oct 8	Jan 4	Dec. 28	Feb 20	Aug 22
Acetone						35.0	
Carbon Disulfide							5.0
Carbon Tetrachloride			2.6				
1,1 Dichloroethane			0.8				
1,2 Dichloroethylene				2.0			
Methylene Chloride						16.0	
1,2 Transdichloroethylene		4.9	4.8			<5	
Tetrachloroethylene	1.1						
1,1,1 Trichloroethane	7.0	6.0		15.0	20.0	12.0	9.0
Trichloroethylene	4.1	2.1	2.6	2.0			<5

\*Table from Whitman & Howard, 1986. Final Report on Contamination  
Correction Study Adamsdale Well.



TABLE 2 \*  
ANALYSIS OF WHITMAN & HOWARD  
SOIL SAMPLES FROM BOULTER FARM  
(W & H 1984)  
(in ug/g, unless otherwise stated)

	SL-1 <u>(Lagoon #2)</u>	SL-2 <u>(Lagoon #1)</u>
VOLATILE ORGANIC COMPOUNDS	N.D.	N.D.
BASE, NEUTRAL, AND ACID EXTRACTABLE ORGANICS		
Naphthalene	64	N.D.
Phenanthrene	<20	N.D.
Anthracene	<20	N.D.

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N.D. = Not Detected

\*Table from Whitman & Howard, 1986. Final Report on Contamination Correction Study Adamsdale Well.

TABLE 3\* CONTAMINATION HISTORY DURING Whitman and Howard STUDY  
VOLATILE ORGANIC COMPOUNDS IN WATER, CONCENTRATIONS IN ug/l

Sampling Point	Dec 28, 1984	Feb 20, 1985	May 2, 1985	Aug 22, 1985	Oct 25, 1985
<u>Monitoring Wells</u>					
M-1				ND	
M-2S				ND	
M-2D				ND	
M-3S				ND	
M-3I				ND	
M-3D				ND	
M-4S				< 5DCE 1,2	
M-4I				<u>10 TCA</u>	
M-4D				ND	
M-5S				ND	
M-5D				< 5 TCA	
				ND	
				ND	
<u>Piezometers</u>					
P-1					
P-6			ND		
P-7D			ND	40 CS2	
P-8			<u>24 TCA</u>		
			ND		
<u>Previous Test Wells</u>					
T-7					
T-9			<u>11 TCA</u>		
			<u>6 DCA 1,1</u>		
T-10			<u>&lt; 5 TCA</u>		
T-80					
					20 B2
<u>Supply Wells</u>					
<u>Courtois</u>					
Adamsdale	ND				
	<u>20 TCA</u>	35 ACE		5 CS2	
		16 MC		<u>&lt; 5 TCE</u>	
		<u>&lt; 5 TROCE</u>		<u>9 TCA</u>	
		<u>12 TCA</u>			
<u>Ferreira</u>					
Surface Water			ND		
SW-1		> 650 ACE			
		5 DCA 1,1			
		400 MIBK			
		6 PCA			
		45 THF			
		21 TOL			
SW-2		ND			
SW-3		ND			
SW-4		ND			

Note: ND = Not Detected  
Key VOCs underlined

\*Table from Whitman & Howard, 1986. Final Report on Contamination  
Correction Study Adamsdale Well.

TABLE 4\*  
ABBREVIATIONS FOR VOLATILE ORGANIC COMPOUNDS

ACETONE	ACE
BENZENE	BZ
CARBON DISULFIDE	CS2
CARBON TETRACHLORIDE	C. TET
CHLOROFORM	CF
DICHLOROETHANE	DCA
1,1 DICHLOROETHANE	DCA 1,1
1,2 DICHLOROETHANE	DCA 1,2
1,1 DICHLOROETHYLENE	DCE 1,1
1,2 DICHLOROETHYLENE	DCE 1,2
METHYLENE CHLORIDE	MC
METHYLISOBUTYL KETONE	MIBK
1,1,2,2 TETRACHLOROETHANE	PCA
TETRACHLOROETHYLENE	PCE
TETRAHYDROFURAN	THF
TOLUENE	TOL
1,2 TRANSDICHLOROETHYLENE	TDCE
1,1,1 TRICHLOROETHANE	TCA
TRICHLOROETHYLENE	TCE

\*Table from Whitman & Howard, 1986. Final Report on Contamination  
Correction Study Adamsdale Well.

TABLE 5  
ANALYSIS OF  
HISTORIC RIDOH & RIDEM SAMPLES FROM BOULTER FARM  
(RIDOH, 1985; NETL, 1985)  
(in mg/l, unless otherwise stated)

	Water from Culvert (RIDOH)	Lagoon #1 Sludge (RIDEM)	Lagoon #1 Water (RIDEM)
<b>METALS</b>			
Arsenic	NA	0.005	0.212
Barium	NA	0.32	13.
Cadmium	NA	<0.01	0.13
Chromium	NA	<0.02	0.78
Lead	NA	0.62	210.
Mercury	NA	<0.001	0.002
Selenium	NA	0.001	0.090
Silver	NA	<0.02	<0.02
<b>PCB/PESTICIDES</b>	NA	<0.01 mg/kg	252 ppb
<b>VOLATILE ORGANIC COMPOUNDS</b>			
Acetone	3 ug/l	NA	NA
trans-1,2-Dichlor- ethylene	NA	ND	1750 ppb
Methylene chloride	NA	ND	3000 ppb
Methyl isobutyl ketone	39 ug/l	NA	NA
Tetrahydrofuran	36 ug/l	NA	NA

NA = Not Analyzed

ND = Not Detected

TABLE 6  
SURFACE WATER SAMPLE ANALYSIS RESULTS  
BOULTER FARMS SAMPLING  
APRIL 23, 1987

	<u>Detection Limit</u>	<u>SW-1</u>	<u>SW-2</u>	<u>SW-3</u>	<u>SW-3 DUP</u>
METALS (mg/l)					
Arsenic	0.01	<0.01	<0.01	<0.01	<0.01
Barium	0.5	<0.5	<0.5	<0.5	<0.5
Cadmium	0.005	<0.005	<0.005	<0.005	<0.005
Chromium	0.05	<0.05	<0.05	<0.05	<0.05
Lead	0.05	<0.05	<0.05	<0.05	<0.05
Mercury	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Selenium	0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.01	<0.01	<0.01	<0.01	<0.01
TOTAL ORGANIC CARBON (mg/l)					
		7.	6.	8.	6.
VOLATILE ORGANIC COMPOUNDS (ppb)					
	1	ND	ND	ND	
Methyl Chloride	1	ND	ND	ND	3.

---



---

ND = Not Detected

TABLE 7  
SEDIMENT SAMPLE ANALYSIS RESULTS  
BOULTER FARMS SAMPLING  
APRIL 23, 1987

	<u>DETECTION LIMIT</u>	SD-1	SD-2	SD-3	SD-3 DUP
OIL & GREASE (percent)	-----	0.02	0.03	0.02	0.05
METALS (E.P. Toxicity)(mg/l)					
Arsenic	0.01	<0.01	<0.01	<0.01	<0.01
Barium	0.5	<0.5	<0.5	<0.5	<0.5
Cadmium	0.005	<0.005	<0.005	<0.005	<0.005
Chromium	0.05	<0.05	<0.05	<0.05	<0.05
Lead	0.05	<0.05	<0.05	<0.05	<0.05
Mercury	0.0005	0.001	<0.0005	<0.0005	<0.0005
Selenium	0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.01	<0.01	<0.01	<0.01	<0.01
POLYCHLORINATED BIPHENYLS (PCBs) (ppm)					
Arochlor 1242 1		ND	ND	ND	ND
Arochlor 1260 1		ND	ND	ND	ND
PESTICIDES (E.P. Toxicity)(mg/l)					
Lindane	0.001	<0.001	<0.001	<0.001	<0.001
Endrin	0.001	<0.001	<0.001	<0.001	<0.001
Methoxychlor	0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	0.005	<0.005	<0.005	<0.005	<0.005

ND = Not Detected

TABLE 8  
SOIL SAMPLE ANALYSIS RESULTS  
BOULTER FARMS SAMPLING  
APRIL 23, 1987

COMMENTS	DETECTION LIMIT	SS-1	SS-4	SS-7*	SS-8	SS-8 DUP	SS-9*	SS-10*
		Grab Sample up to 7" deep	Sample depth: 3"	Composite 7A: 2' 7B: 2' 7C: 2½'	Grab Sample up to 8" deep	Grab Sample up to 8" deep	Composite 9A: 1' 9B: 1' 9C: 2½'	Composite 10A: 1' 10B: 6-8" 10C: 1'
OIL & GREASE (percent)	----	26.7	26.1	NA	2.2	3.8	NA	NA
METALS (E.P. Toxicity)(mg/l)								
Arsenic	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Barium	0.5	<0.5	<0.5	1.31	<0.5	<0.5	<0.5	<0.5
Cadmium	0.005	<0.005	<0.005	<0.005	0.01	0.01	<0.005	<0.005
Chromium	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead	0.05	0.17	0.73	<0.05	<0.05	<0.05	<0.05	<0.05
Mercury	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Selenium	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POLYCHLORINATED BIPHENYLS (PCB)(ppm)								
Arochlor 1242	1	24	8	ND	ND	ND	ND	ND
Arochlor 1260	1	28	9	ND	ND	ND	ND	ND
PESTICIDES (E.P. Toxicity)(mg/l)								
Lindane	0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Methoxychlor	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
VOLATILE ORGANIC COMPOUNDS(ppm)								
trans-1,2-Dichloroethylene	1	NA	6.	ND	ND	ND	ND	ND
1-Trichloroethane	1	NA	5.	ND	ND	ND	ND	ND
trichloroethylene	1	NA	7.	ND	ND	ND	ND	ND
tetrachloroethylene	1	NA	2.	ND	ND	ND	ND	ND
toluene	1	NA	2.	ND	ND	ND	ND	ND
Xylenes	1	NA	9.	ND	ND	ND	ND	ND

ND = Not Detected

NA = Not Analyzed

\* = Samples composited in the laboratory

TABLE 9  
ANALYSIS OF ERA  
SAMPLES FROM BOULTER FARM  
(ERA 1987)  
(in ppb, unless otherwise stated)

VOLATILE ORGANIC COMPOUNDS	<u>LM-1*</u>	<u>LM-2*</u>	<u>LM-3*</u>	<u>Pond #4*</u>
Methylene chloride	1	6	2	4
Toluene	ND	1	ND	ND

ND = Not Detected

\* Samples were received at the Rhode Island Analytical Laboratories from ERA on July 2, 1987 (ERA, 1987).



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POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT

REGION I SITE NUMBER (to be assigned by HQ)  
RI 10002  
RID 980672620

GENERAL INSTRUCTIONS: Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentative Disposition (Section II). File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335); 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME Boulter Farm		B. STREET (or other identifier) 514 Curran Rd.	
C. CITY Cumberland	D. STATE RI	E. ZIP CODE 02864	F. COUNTY NAME Providence
G. SITE OPERATOR INFORMATION 1. NAME Samuel Boulter (deceased)		2. TELEPHONE NUMBER	
3. STREET Family Home: 514 Curran Rd.	4. CITY Cumberland	5. STATE RI	6. ZIP CODE 02864
H. REALTY OWNER INFORMATION (if different from operator of site) 1. NAME		2. TELEPHONE NUMBER	
3. CITY		4. STATE	5. ZIP CODE

I. SITE DESCRIPTION  
Inactive gravel excavation and dump.  
15-20 acres

J. TYPE OF OWNERSHIP  
☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE

II. TENTATIVE DISPOSITION (complete this section last)

A. ESTIMATE DATE OF TENTATIVE DISPOSITION (mo., day, & yr.) 7/1/81	B. APPARENT SERIOUSNESS OF PROBLEM <input type="checkbox"/> 1. HIGH <input type="checkbox"/> 2. MEDIUM <input checked="" type="checkbox"/> 3. LOW <input type="checkbox"/> 4. NONE pending well analysis
C. PREPARER INFORMATION 1. NAME Barbara Walsh	
2. TELEPHONE NUMBER (617) 223-5775	3. DATE (mo., day, & yr.) 6/19/81

III. INSPECTION INFORMATION

A. PRINCIPAL INSPECTOR INFORMATION 1. NAME Barbara Walsh Susan Hanamoto		2. TITLE Hydrogeologist Chem. Eng.
3. ORGANIZATION US EPA WMB	4. TELEPHONE NO. (area code & no.) (617) 223-5775	

B. INSPECTION PARTICIPANTS		
1. NAME	2. ORGANIZATION	3. TELEPHONE NO.
Barbara Walsh	US EPA WMB	(617) 223-5775
Susan Hanamoto	US EPA WMB	(617) 223-1591
John Quinn	RI DEM	(401) 277-2797

C. SITE REPRESENTATIVES INTERVIEWED (corporate officials, workers, residents)		
1. NAME	2. TITLE & TELEPHONE NO.	3. ADDRESS
note: could not interview owner's wife, unleashed Doberman Pinscher on property.		

## III. INSPECTION INFORMATION (continued)

## D. GENERATOR INFORMATION (sources of waste)

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE GENERATED

## E. TRANSPORTER/HAULER INFORMATION

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE TRANSPORTED

## F. IF WASTE IS PROCESSED ON SITE AND ALSO SHIPPED TO OTHER SITES, IDENTIFY OFF-SITE FACILITIES USED FOR DISPOSAL.

1. NAME	2. TELEPHONE NO.	3. ADDRESS

## G. DATE OF INSPECTION

(mo., day, &amp; yr.)

6/10/81

## H. TIME OF INSPECTION

9:30 AM

## I. ACCESS GAINED BY: (credentials must be shown in all cases)



1. PERMISSION



2. WARRANT

John Quinn, RI DEM

## J. WEATHER (describe)

25°C Clear, Sunny, Scattered Clouds

## IV. SAMPLING INFORMATION

A. Mark 'X' for the types of samples taken and indicate where they have been sent e.g., regional lab, other EPA lab, contractor, etc. and estimate when the results will be available.

1. SAMPLE TYPE	2. SAMPLE TAKEN (mark 'X')	3. SAMPLE SENT TO:	4. DATE RESULTS AVAILABLE
a. GROUNDWATER			
b. SURFACE WATER			
c. WASTE			
d. AIR			
e. RUNOFF			
f. SPILL			
g. SOIL			
h. VEGETATION			
i. OTHER (specify)		No samples taken	

## B. FIELD MEASUREMENTS TAKEN (e.g., radioactivity, explosivity, PH, etc.)

1. TYPE	2. LOCATION OF MEASUREMENTS	3. RESULTS
None		

## IV. SAMPLING INFORMATION (continued)

## C. PHOTOS

1. TYPE OF PHOTOS

☒ a. GROUND ☐ b. AERIAL

2. PHOTOS IN CUSTODY OF:

Susan Hanamoto

## D. SITE MAPPED?

☒ YES. SPECIFY LOCATION OF MAPS:

published maps in WMB case file

USGS Surficial Geology Pawtucket Quad 1949  
Bedrock Geology " " 1949  
Topography 7.5' " " rev. 1975

## E. COORDINATES

1. LATITUDE (deg.-min.-sec.)

41° 55' 45"

2. LONGITUDE (deg.-min.-sec.)

71° 23' 00"

## V. SITE INFORMATION

## A. SITE STATUS

☐ 1. ACTIVE (Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)☒ 2. INACTIVE (Those sites which no longer receive wastes.)☐ 3. OTHER (specify):  
(Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)

## B. IS GENERATOR ON SITE?

☒ 1. NO☐ 2. YES (specify generator's four-digit SIC Code):

## C. AREA OF SITE (in acres)

15-20

## D. ARE THERE BUILDINGS ON THE SITE?

☐ 1. NO☒ 2. YES (specify):

Boulter Home

## VI. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

A. TRANSPORTER	B. STORER	C. TREATER	D. DISPOSER
1. RAIL	1. PILE	1. FILTRATION	1. LANDFILL
2. SHIP	2. SURFACE IMPOUNDMENT	2. INCINERATION	2. LANDFARM
3. BARGE	3. DRUMS	3. VOLUME REDUCTION	3. OPEN DUMP
4. TRUCK	4. TANK, ABOVE GROUND	4. RECYCLING/RECOVERY	4. SURFACE IMPOUNDMENT
5. PIPELINE	5. TANK, BELOW GROUND	5. CHEM./PHYS./TREATMENT	5. MIDNIGHT DUMPING
6. OTHER (specify):	6. OTHER (specify):	6. BIOLOGICAL TREATMENT	6. INCINERATION
		7. WASTE OIL REPROCESSING	7. UNDERGROUND INJECTION
		8. SOLVENT RECOVERY	8. OTHER (specify):
		9. OTHER (specify):	

## E. SUPPLEMENTAL REPORTS: If the site falls within any of the categories listed below, Supplemental Reports must be completed. Indicate which Supplemental Reports you have filled out and attached to this for..

☐ 1. STORAGE ☐ 2. INCINERATION ☐ 3. LANDFILL ☐ 4. SURFACE IMPOUNDMENT ☐ 5. DEEP WELL

☐ 6. CHEM/BIO/PHYS TREATMENT ☐ 7. LANDFARM ☒ 8. OPEN DUMP ☐ 9. TRANSPORTER ☐ 10. RECYCLOR/RECLAIMER

## VII. WASTE RELATED INFORMATION

## A. WASTE TYPE

☐ 1. LIQUID ☒ 2. SOLID ☒ 3. SLUDGE ☐ 4. GAS

## B. WASTE CHARACTERISTICS

☐ 1. CORROSIVE ☒ 2. IGNITABLE ☐ 3. RADIOACTIVE ☐ 4. HIGHLY VOLATILE

☐ 5. TOXIC ☐ 6. REACTIVE ☐ 7. INERT ☐ 8. FLAMMABLE

☐ 9. OTHER (specify):

## C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

No, limited analysis performed by RI Analytical Laboratories, Inc.

## VII. WASTE RELATED INFORMATION (continued)

2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE		b. OIL		c. SOLVENTS		d. CHEMICALS		e. SOLIDS		f. OTHER	
AMOUNT		AMOUNT		AMOUNT		AMOUNT		AMOUNT		AMOUNT	
approx. 25 drums		unknown						unknown			
UNIT OF MEASURE		UNIT OF MEASURE		UNIT OF MEASURE		UNIT OF MEASURE		UNIT OF MEASURE		UNIT OF MEASURE	
unknown											
<input checked="" type="checkbox"/> (1) PAINT, PIGMENTS	<input checked="" type="checkbox"/> (1) OILY WASTES	<input checked="" type="checkbox"/> (1) HALOGENATED SOLVENTS	<input checked="" type="checkbox"/> (1) ACIDS	<input checked="" type="checkbox"/> (1) FLYASH	<input checked="" type="checkbox"/> (1) LABORATORY, PHARMACEUT.						
(2) METALS SLUDGES	(2) OTHER(specify):	(2) NON-HALOGNTD. SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL						
(3) POTW		(3) OTHER(specify):	(3) CAUSTICS	(3) MILLING/MINE TAILINGS	(3) RADIOACTIVE						
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMELTING WASTES	(4) MUNICIPAL						
<input checked="" type="checkbox"/> (5) OTHER(specify):			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER(specify):						
Red, brown, orange, and yellow paint-like substances  Analysis revealed metals; not tested for organics								<input checked="" type="checkbox"/> (6) OTHER(specify):  Combustable, flammable solid in plastic bags reported by Lt. Pratt in memo to Chief Fougere.			

D. LIST SUBSTANCES OF GREATEST CONCERN WHICH ARE ON THE SITE (place in descending order of hazard)

1. SUBSTANCE	2. FORM (mark 'X')			3. TOXICITY (mark 'X')				4. CAS NUMBER	5. AMOUNT	6. UNIT
	a. SOLID	b. LIQ.	c. VAPOR	a. HIGH	b. MED.	c. LOW	d. NONE			
unknown										

## VIII. HAZARD DESCRIPTION

FIELD EVALUATION HAZARD DESCRIPTION: Place an 'X' in the box to indicate that the listed hazard exists. Describe the hazard in the space provided.

☒ A. HUMAN HEALTH HAZARDS

Potential for health hazards if soil has been contaminated or if ground water is found to be contaminated. No waste is presently on site and no residues were observed. The hazard could exist, however, if any of the waste migrated into the soil or ground water before the barrels were removed.

## VIII. HAZARD DESCRIPTION (continued)

☒ B. NON-WORKER INJURY/EXPOSURE The site is a popular "hang-out" for local youths and occasional dirt bikers according to J. Quinn. If waste residue is present in the soil, exposure might occur via contact with the soil and breathing in air born dust. ✓

☐ C. WORKER INJURY/EXPOSURE

☒ D. CONTAMINATION OF WATER SUPPLY

Water supply could be contaminated if waste residue has seeped into the ground water and migrated to nearby private wells or if contaminated ground water discharges into Millers River and Abbott Run. The presence or absence of contamination would have to be determined by chemical analysis.

☒ E. CONTAMINATION OF FOOD CHAIN

No crops or livestock on property.

☒ F. CONTAMINATION OF GROUND WATER

Waste residues may have migrated into the soil and ground water before the barrels were cleaned up. Wells tested (see map) show low contaminated levels but none of these tested are located close enough to the site to rule out other sources of contamination.

☒ G. CONTAMINATION OF SURFACE WATER

Millers River runs through the site and then drains into Abbott Run, a surface drinking water source for North Attleboro. Miller's River was approx. 2 m wide x 0.1 m deep on the day of inspection. The water was clear and without noticeable odor although there was some iron staining on the rocks and algae growth.

## VIII. HAZARD DESCRIPTION (continued)

☐ H. DAMAGE TO FLORA/FAUNA

None observed - to the contrary vegetation was <sup>vigorous</sup>~~biogous~~ even in the area of the fire.

☐ I. FISH KILL

None observed

☐ J. CONTAMINATION OF AIR

None observed

☐ K. NOTICEABLE ODORS

None

☒ L. CONTAMINATION OF SOIL

None was observed - chemical analysis would be necessary to demonstrate conclusively.

☐ M. PROPERTY DAMAGE

None observed.



## VIII. HAZARD DESCRIPTION (continued)

☒ N. FIRE OR EXPLOSION

Fire occurred on 4/12-13/81. Involved approx. 25 steel and fiber board barrels containing paint-like substances. See complete reports by Barry W. Muller, RI DEM. 4/13/81 and 4/16/81. No evidence of the fire, barrels, or waste remains at the site.

☐ O. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUID

None observed

☐ P. SEWER, STORM DRAIN PROBLEMS

None observed

☒ Q. EROSION PROBLEMS

Potential for gullyng particularly along scattered dirt bike trails parallel to hillslope.

☐ R. INADEQUATE SECURITY

Boulders placed along Curran Road to prevent vehicle access. Appears to be effective except for dirt bikes.

☐ S. INCOMPATIBLE WASTES

None observed

## VIII. HAZARD DESCRIPTION (continued)

☒ T. MIDNIGHT DUMPING

The source of the barrels is unknown, however, the R.I. DEM did receive an anonymous letter from an employee of a furniture finishing company stating that his firm had dumped lacquer and other wastes near Curran Road 10 years ago. The letter is unconfirmed (see Providence Journal 11/14/80).

☐ U. OTHER (specify):

It should be noted that no actual waste or contamination was observed during this inspection. It is known, however, that leaking drums were dumped on the site and later removed. The presence or absence of any remaining contamination of the soil or ground water must be detected by chemical analysis.

## IX. POPULATION DIRECTLY AFFECTED BY SITE

A. LOCATION OF POPULATION	B. APPROX. NO. OF PEOPLE AFFECTED	C. APPROX. NO. OF PEOPLE AFFECTED WITHIN UNIT AREA	D. APPROX. NO. OF BUILDINGS AFFECTED	E. DISTANCE TO SITE (specify units)
1. IN RESIDENTIAL AREAS	unknown	unknown	25-50 homes	1km
2. IN COMMERCIAL OR INDUSTRIAL AREAS				
3. IN PUBLICLY TRAVELLED AREAS				
4. PUBLIC USE AREAS (parks, schools, etc.)				

## X. WATER AND HYDROLOGICAL DATA

A. DEPTH TO GROUNDWATER (specify unit)	B. DIRECTION OF FLOW	C. GROUNDWATER USE IN VICINITY
D. POTENTIAL YIELD OF AQUIFER	E. DISTANCE TO DRINKING WATER SUPPLY (specify unit of measure)	F. DIRECTION TO DRINKING WATER SUPPLY
G. TYPE OF DRINKING WATER SUPPLY		
<input type="checkbox"/> 1. NON-COMMUNITY < 15 CONNECTIONS* <input type="checkbox"/> 2. COMMUNITY (specify town): _____ > 15 CONNECTIONS		
<input type="checkbox"/> 3. SURFACE WATER <input type="checkbox"/> 4. WELL		

Continued From Page 8

## X. WATER AND HYDROLOGICAL DATA (continued)

## H. LIST ALL DRINKING WATER WELLS WITHIN A 1/4 MILE RADIUS OF SITE

1. WELL	(below surface) 2. DEPTH (specify unit)	3. LOCATION (proximity to population/buildings)	4. NON-COM- MUNITY (mark 'X')	5. COMMUN- ITY (mark 'X')
#321 Sam. Boulter	50 ft.	Curran Rd. (See attached map and Cumberland, RI description)	X	
#322 Ferd. Viens	20 ft.	Curran Rd. Cumberland, RI	X	
#6 Robt. Hirsch	34 ft.	Depot St. N. Attleboro, MA	X	
#5 Geo. Boufford	13 ft.	Depot St. N. Attleboro, MA	X	
#8 Ernst Stevens	365 ft.	106 Curran Rd.	X	

## I. RECEIVING WATER

1. NAME

Miller's River

☐ 2. SEWERS☒ 3. STREAMS/RIVERS☐ 4. LAKES/RESERVOIRS☐ 5. OTHER (specify):

## 6. SPECIFY USE AND CLASSIFICATION OF RECEIVING WATERS

Approx. 2m x 0.1 m non-navigable

## XI. SOIL AND VEGETATION DATA

## LOCATION OF SITE IS IN:

☐ A. KNOWN FAULT ZONE☐ B. KARST ZONE☐ C. 100 YEAR FLOOD PLAIN☐ D. WETLAND☐ E. A REGULATED FLOODWAY☐ F. CRITICAL HABITAT☒ G. RECHARGE ZONE <sup>part of site</sup> OR SOLE SOURCE AQUIFER

## XII. TYPE OF GEOLOGICAL MATERIAL OBSERVED

Mark 'X' to indicate the type(s) of geological material observed and specify where necessary, the component parts.

*X*	A. OVERBURDEN	*X*	B. BEDROCK (specify below)	*X*	C. OTHER (specify below)
X	1. SAND	X	Sedimentary eg., ss. of Pennsylvanian age		overburden is characterized as a Kane Terrace by Quinn et al, 1948
	2. CLAY		Quinn, et al, 1948		
X	3. GRAVEL		No outcrop observed		

## XIII. SOIL PERMEABILITY

☒ A. UNKNOWN☐ B. VERY HIGH (100,000 to 1000 cm/sec.)☐ C. HIGH (1000 to 10 cm/sec.)☐ D. MODERATE (10 to .1 cm/sec.)☐ E. LOW (.1 to .001 cm/sec.)☐ F. VERY LOW (.001 to .00001 cm/sec.)

## G. RECHARGE AREA

☒ 1. YES☐ 2. NO

3. COMMENTS:

## H. DISCHARGE AREA

☒ 1. YES☐ 2. NO

3. COMMENTS:

## I. SLOPE

1. ESTIMATE % OF SLOPE

0

2. SPECIFY DIRECTION OF SLOPE, CONDITION OF SLOPE, ETC.

Area where barrels were is approx. level. Other areas have  
slopes up to 50%.

## J. OTHER GEOLOGICAL DATA

Moderately well rounded silts through cobbles poorly sorted.  
Published transmissibility (Quinn, et al, p 47, 1948) approx. 58,850 gal/day/ft.  
Thickness of glacial sediments > 50 ft at Boulter Well 321.

## XIV. PERMIT INFORMATION

List all applicable permits held by the site and provide the related information.

A. PERMIT TYPE (e.g., RCRA, State, NPDES, etc.)	B. ISSUING AGENCY	C. PERMIT NUMBER	D. DATE ISSUED (mo., day, & yr.)	E. EXPIRATION DATE (mo., day, & yr.)	F. IN COMPLIANCE (mark 'X')		
					1. YES	2. NO	3. UN- KNOWN
None known							

## XV. PAST REGULATORY OR ENFORCEMENT ACTIONS

☐ NONE    ☒ YES (summarize in this space)

Letter dated 6/17/76 from RI DEM ordering Sam Boulter to stop dumping solid waste within 10 days since he failed to apply for a license.

NOTE: Based on the information in Sections III through XV, fill out the Tentative Disposition (Section II) information on the first page of this form.

Publication:  
(in addition to  
maps cited  
on p.3.

The Geology and Ground Water Resources of the  
Pawtucket Quadrangle, RI

Avail: USGS  
RM. 224  
Federal Bldg. & USPO  
Providence, RI 02903

Alonzo Quinn, et al  
RI Industrial Commission  
Geological Bulletin No. 3  
1948

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U. S. Geological Survey  
224 Federal Bldg & USPO  
Providence, R. I. 02903

State of Rhode Island and Providence



# THE GEOLOGY AND GROUND-WATER RESOURCES

of the

## Pawtucket Quadrangle, Rhode Island

by

LEO V. QUINN, ROGER A. HAY, and L. SEYMOUR

N. E. CHUTE and W. E. ALLEN

*Prepared in cooperation with the  
U. S. Geological Survey and published by permission of its Director*

RHODE ISLAND INDUSTRIAL COMMISSION

GEOLOGICAL BULLETIN No. 3

1948



# EXPLANATION

- -100- Bedrock Contours  
Based on Well Information
- Contact of Till and Outwash Deposits
- - - Approximate Contact of Till and Outwash Deposits
- 323 Well or Test Boring ending at or in Bedrock
- 7 Well or Test Boring ending above Bedrock
- ⊙ 265 U.S. Geological Survey, Observation Well
- Upper figure is location designation
- Lower figure is altitude of bedrock surface or bottom of well where well does not reach bedrock, in feet above or below (-) mean sea level
- = private well near site's untested
- Bedrock Contour
- Datum is mean
- Scale 1:24,000
- 1 = well tested by MA
- 8-site of fire

Table 9—Records of wells in the Pawtucket quadrangle (Concluded)

TOWN OF NORTH ATTLEBOROUGH, MASSACHUSETTS

Table 9—Records of wells in the

TOWN OF NORTH ATTLEBOROUGH, MASSACHUSETTS

Well number	Owner	Location	Altitude of land surface (feet) <sup>1</sup>	Depth below land surface (feet)	Diameter (inches)	Pump capacity (g.p.m.) <sup>2</sup>	Yield (g.p.m.) <sup>3</sup>	Water level (feet) <sup>4</sup>	Hardness (p.p.m.) <sup>5</sup>	Water-bearing material	Materials penetrated in feet below land surface	Remarks	
No. 1	Robert Holiday	Holmes Road	245	310	6	..	..	..	Fairly hard	Rock	Till Rock	0-10 10-310	Domestic and stock.
No. 2	Peter Brehle	Paine Road	160	49	30	..	..	..	Hard	Sand, gravel and rock	Sand and gravel Rock	0-33 33-49	Domestic.
No. 3	Mrs. Matilda Holmes	Millard Road off Paine Road	190	10	30	..	..	4' 8/22/46	Hard	Till	Till Rock, at	0-10 10	Domestic and stock.
No. 4	W. Jennison	Hawkins Road	130	28	30	..	..	22' 8/22/46	Hard	Sand and gravel	Sand and gravel	0-28	Domestic. Low in summer.
No. 5	Robert Hirsch	Depot St. north of Robbin Hollow Pond	85	13	30	..	..	12' 8/28/46	Soft	Sand and gravel	Sand and gravel	0-13	Abandoned, formerly domestic.
No. 6	George Boufford	Depot St. north of Robbin Hollow Pond	100	34	30	6	..	30' 8/28/46	Soft	Sand and gravel	Sand and gravel Till, at	0-34 24	Domestic.

TOWN OF PLAINVILLE, MASSACHUSETTS

Pla. 2	Arthur Malo	Allen St.	295	17	30	6	..	13' 7/16/46	Soft	Till	Till Rock, at	0-17 17	Domestic and stock.
--------	-------------	-----------	-----	----	----	---	----	----------------	------	------	---------------	------------	---------------------

- <sup>1</sup> Altitude above sea level as determined from topographic map of Pawtucket quadrangle.
- <sup>2</sup> Maximum reported yield in gallons per minute (g. p. m.).
- <sup>3</sup> Reported depth below land surface.
- <sup>4</sup> CaCO<sub>3</sub> hardness in parts per million (p. p. m.) as determined by soap method.
- <sup>5</sup> Additional water analysis given in table 8.
- For additional data see well logs and descriptive notes.
- <sup>6</sup> Measured by U. S. G. S.
- Additional water analysis given in table 7.
- <sup>7</sup> Average withdrawal in gallons per day (g. p. d.).

Table 9—Records of wells in the Pawtucket quadrangle (Continued)

TOWN OF CUMBERLAND, R. I. (Concluded.)

Well number	Owner	Location	Altitude of land surface (feet) <sup>1</sup>	Depth below land surface (feet)	Diameter (inches)	Pump capacity (g.p.m.) <sup>2</sup>	Yield (g.p.m.) <sup>3</sup>	Water level (feet) <sup>4</sup>	Hardness (p.p.m.) <sup>5</sup>	Water-bearing material	Materials penetrated in feet below land surface	Remarks
Cum. 305	William Rawson	Rawson Road	135	560	6	..	4	27 3/39	Hard	Rock	Sand and gravel Rock	0-55 55-560 Abandoned, formerly domestic. Dry in fall.
Cum. 306	William Rawson	Rawson Road	130	285	6	16	40	25 1944	Hard	Rock	Sand and gravel Rock	0-53 53-285 Domestic, stock, and poultry.
Cum. 308	Mrs. Edith M. Carpenter	Rawson Road	120	17	30	..	..	15' 8/22/46	Hard	Sand and gravel	Sand and gravel	0-17 Abandoned, formerly domestic. Low in fall.
Cum. 309	Charles Collins	Howard Road	140	28	2½	4	..	17 8/46	Hard	Sand and gravel	Sand and gravel	0-28 Domestic.
Cum. 313	C. B. Flagg	Abbott Run Valley Road	150	30	30	..	..	24 8/46	Hard	Sand and gravel	Sand and gravel Rock, at	0-30 30 Domestic and stock. Temp. 53° F.
Cum. 314	Russell Schofield	Abbott Run Valley Road	135	185	6	3	2	30 11/44	Hard	Rock	Sand Rock	0-60 60-185 Domestic.
Cum. 315	J. L. Carpenter	Abbott Run Valley Road	135	30	28	..	..	15' 8/22/46	Fairly soft	Sand and gravel	Sand and gravel Till, at	0-30 30 Abandoned, used as U. S. G. S. observation well.
Cum. 316	Mrs. Paul Barnard	Bear Hill Road	205	602	6	..	No water	..	..	..	Till Rock	0-17 17-602 Abandoned, no water in well.
Cum. 317	Daniel Cargill	Abbott Run Valley Road	170	6	120x 120	..	..	2' 8/22/46	Hard	Till	Till	0-6 Flowing spring.
Cum. 318	Girard Labonte	Scott Road	190	120	6	..	..	..	Hard	Rock	Till Rock	0-20 20-120 Domestic and stock.
Cum. 320	Mrs. Bertha Carpenter	Abbott Run Valley Road	145	289	6	..	1½	20 1916	Hard	Rock	Sand and gravel Rock	0-20 20-289 Domestic and stock. Dry in fall.
Cum. 321	Samuel P. Boulter	Curran Road off Dexter St., Valley Falls	125	50	1½	4	..	1 8/46	Soft	Sand and clay	Sand and clay Till, at	0-50 50 Domestic. Low in fall.
Cum. 322	Ferdinand Viena	Curran Rd. north of Dexter St., Valley Falls	105	20	30	..	..	16 8/46	Soft	Sand and gravel	Sand and gravel	0-20 Domestic.
Cum. 323	William Switch	Dexter St., Valley Falls	120	38	30	..	..	34' 8/28/46	Soft	Sand and gravel	Sand and gravel	0-38 Domestic.
Cum. 324	T. McCauley	High St., Valley Falls	100	50	30	..	..	48' 8/28/46	Soft	Sand and gravel	Sand and gravel	0-50 Abandoned, formerly domestic.
Cum. 325	Joseph Kulaga	Crowell Rd. off Dexter St., Valley Falls	70	35	30	4	..	30 8/46	Soft	Sand and gravel	Sand and gravel	0-35 Domestic.
Cum. 326	Carl Schleif	Bryant St., off Dexter St., Valley Falls	150	20	30	4	..	6' 8/28/46	Fairly hard	Till	Till Rock, at	3-20 20 Abandoned, formerly domestic.
Cum. 327	Arthur P. Carr	Highland Ave. off Dexter St., Valley Falls	125	20	30	..	..	17' 8/28/46	Soft	Sand and gravel	Sand and gravel Till, at	0-20 20 Abandoned, formerly domestic.

TOWN OF LINCOLN, R. I.

Lin. 1 <sup>a</sup>	Rhode Island Dept. of Agriculture and Conservation, Office of Forests and Parks	Lincoln Woods Reservation Bathing Beach	205	191	8	14 to 15	33	12 3/44	Hard	Rock	Sand and gravel Rock	0-19 19-191 Drinking, showers, toilets.
Lin. 2	Universal Machine and Tool Co.	50 Scott Street Lonsdale	80	25	1½	..	..	..	Soft	Gravel	Gravel	0-25 Domestic.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: AUG 10 1981

SUBJECT: Final Site Assessment - Boulter Farm Site - Cumberland, RI and North Attleboro, Ma.

FROM: Barbara Walsh, Susan Hanamoto, and Jean Mackey

TO: John Hackler  
Office of Uncontrolled Waste Sites

THRU: Conrad Desrosiers, Solid Waste Section *Conrad*

The Office of Uncontrolled Waste Sites asked the Waste Management Branch to investigate potential contamination on the Boulter Farm site in Cumberland, RI and North Attleboro, MA. The attached site assessment report summarizes the results of both our preliminary site assessment and site inspection.

EPA originally became involved when John Hackler of the Region I Office of Uncontrolled Waste Sites received a letter from Thomas E. Wright, Chief of the Division of Air and Hazardous Materials of the RI DEM requesting that EPA fund a study to determine the effects of potential contamination from the Boulter Farm site on the Pawtucket and North Attleboro water supplies. Mr. Wright felt EPA should be involved because this is an interstate problem (RI - MA). John Hackler also received a letter (2/27/81) from Raymond Payson, Director of the Department of Public Works for North Attleboro, MA requesting that a representative from EPA contact him so that the threat to the North Attleboro, MA and Pawtucket, RI water supplies could be further investigated and to better coordinate MA and RI efforts.

It was determined on a site inspection conducted on June 10, 1981, that there was no visible evidence on the site of any current source of contamination. Any present threats to human health or the environment would be due to the possible migration of previously dumped wastes into the soil or groundwater. However, no remaining visible evidence (odors, vegetative stress, obvious residues, etc.) for such contamination was found on the site inspection.

If contamination from previous sources remains, then the most direct impact on human health and the environment, considering current use, is likely to result from drinking contaminated groundwater or by direct contact with contaminated sediments. There may also be danger to air quality from any contaminated dust raised by dirt bikes. Any impact on surface water is likely to be the result of discharge of contaminated groundwater or interflow into surface waters (Miller's River). No current source of direct overland discharge of contaminants into surface waters was observed except for perhaps runoff from extreme rainfall.

Our recommendation is that the private water supply wells and Miller's River near the site be tested for evidence of contamination and that the soil in the immediate vicinity of known past chemical dumping be tested for waste residue. The reasons for this recommendation are detailed in Section VI of the attached Trip Report (see Appendix V).

SITE ASSESSMENT REPORT

BOULTER FARM SITE,  
CUMBERLAND, RI AND  
NORTH ATTLEBORO, MA

Barbara L. Walsh  
Susan L. Hanamoto  
Jean K. Mackey

Waste Management Branch  
Air & Hazardous Materials Division  
U.S. Environmental Protection Agency  
Boston, Massachusetts

SITE ASSESSMENT REPORT

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Transmittal Memo  
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## APPENDICES

- I. Selected Rhode Island Department of Environmental Management File Reports and Photography.
- II. Previous Chemical Analysis of Wastes.
- III. Previous Analysis of Well Water
- IV. EPA Forms:   T2070-2   Preliminary Assessment  
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                  T2070-4   Tentative Disposition  
                  T2070-5   Final Strategy Determination
- V. Trip Report.
- VI. Bibliography

## I. INTRODUCTION

### A. Problem Identification

The Office of Uncontrolled Waste Sites asked the Waste Management Branch to do a preliminary site investigation of the Boulter Farm site primarily to look for potential contamination of water supplies. John Hackler received a letter from Thomas E. Wright, Chief of the Division of Air and Hazardous Materials of the RI DEM requesting that EPA fund a study to determine any impacts on the Pawtucket and North Attleboro water supplies. Mr. Wright felt EPA should be involved because this is an interstate problem since the site and potentially affected water supplies are located in two states (RI - MA). John Hackler also recieved a letter from Raymond Payson, Director of the Department of Public Works for North Attleboro, MA requesting that a representative from EPA contact him so that the threat to the North Attleboro, MA and Pawtucket, RI water supplies could be further investigated and to better coordinate MA and RI efforts.

### B. Purpose and Objectives

The purpose of this investigation was to respond to the Office of Uncontrolled Waste Sites' request by conducting a preliminary site assessment and site inspection. Our objectives were to complete the U.S. Environmental Protection Agency's Preliminary Site Assessment and Inspection Forms (#T2070-2 and T2070-3) along with a Trip Report and Site Assessment report summarizing the information obtained during the investigation and recommending any necessary future actions.

### C. WORK PERFORMED

The site investigation consisted of 2 phases, preliminary background information and data gathering and a site inspection on 6/10/81.

The preliminary background information and data gathering phase consisted of interviews and/or file reviews with EPA, USGS, RI DEM, MA DEQE, Cumberland, RI, North Attleboro, MA offices, and a literature search for published reports on site geology, etc. The following outline summarizes the results of each contact (see bibliography for contact names and phone numbers).

1. US EPA

- Enforcement and S & A - no known connection to another enforcement case in Cumberland, RI; no Boulter site file.
- Permits - no permits held by Boulter Farm site; no Boulter site file.
- Office of Uncontrolled Sites - no information on wastes or past site activity; 2 letters (from RI DEM and North Attleboro) requesting assistance investigating site, especially potential contamination of North Attleboro water supply in Boulter site file.

2. U.S.G.S.

- Boston - background hydrologic information on region (see Waste Management Branch site file); no Boulter site file.
- Providence - Background hydrologic and geologic information on region and site (see bibliography); no current well location map here or at RI Department of Water Resources; no Boulter site file.

3. RI DEM

- Boulter site file contains incident reports (Appendix I), photos (Appendix I) newspaper articles (WMB site file), and an anonymous report of past dumping (DEM files); no current well location map or inventory.

4. MA DEQE

- Southeast Regional Office (Lakeville) - obtained public well locations; no Boulter site file.

5. Pawtucket Water Supply Board

- No Boulter site file; no listing of private wells.

6. Cumberland, RI

- No Boulter site file; no listing of private wells.

7. North Attleboro, MA

- Department of Public Works - no well in area; no Boulter site file.

## II. Site Background

### A. Ownership

The Boulter Farm site consists of the house and property of the Boulter family. According to Rhode Island Department of Environmental Management file information, the owner, Sam Boulter, is deceased. His wife still occupies the house on the site. The mailing address of the Boulter residence is 514 Curran Road, Cumberland, Rhode Island 02864.

Ownership and operation of the site has been in the Boulter family since at least 1946 (Quinn, et. al., 1948.)

### B. Location

The Boulter Farm is located at approximately 71° 23' 00" W longitude and 41° 55' 45" N latitude on the Pawtucket, Rhode Island - Massachusetts, 7.5 minute quadrangle, topographic map of the United State Geological Survey. The Rhode Island - Massachusetts State line (and also Cumberland, Rhode Island and North Attleboro, Massachusetts town line) runs north/ south through the site approximately through the Boulter family home.

The site boundaries extend approximately from the Boulter family home to Miller's River along Curran Road and northward for about 0.5 miles (see map appended to Trip Report - 7/8/81). The location of past solid waste and chemical dumping is a 15 - 20 acre area shown with the letter F on the Trip Report map (7/8/81) (see Appendix V).



### C. General Site Description

The site is an inactive gravel excavation with resultant disturbed glacial sediments and hummocky topography. The area is well vegetated with deciduous trees, shrubs, grasses, and wild flowers. Fauna observed on the site inspection (6/10/81) included birds, insects, and a rabbit.

The only surface water observed on the site was Miller's River which forms the western site boundary. There is one known private well on site and four private wells immediately adjacent to the site (for locations see Site Inspection Form Map, 6/19/81.)

The area adjacent to the site is partially residential and partially undeveloped. In addition to the houses shown on the topographic map, there is a group of new single family homes (since 1975) near the site, to the west of Miller's River. Other cultural features include power lines which run across the site sub-parallel to Miller's River, and a dog house and perhaps a shed north of the Boulter residence.

### D. Waste Disposal History

The site is reported to have been used as a solid waste dump until 6/17/76 when the Rhode Island Department of Environmental Management ordered Sam Boulter to stop dumping solid waste within 10 days for failure to apply for a license. In addition, the Rhode Island Department of Environmental Management received an anonymous and unverified letter from a person who claimed that his employer, a furniture refinisher, had dumped wastes including lacquer near Curran Road in Cumberland, Rhode Island. The Rhode Island Department of Environmental Management (DEM) files also contain

2 reports (4/13/81 and 4/16/81, see Appendix I) by Barry W. Muller of the DEM summarizing the events that occurred in response to a fire on the Boulter site (4/12-13/81) involving approximately 25 steel and fiber board barrels containing paint-like substances and old oil and gasoline tanks (see photos in Appendix I). According to the DEM file reports the fire was extinguished by the Valley Falls, Rhode Island Fire Department. One fireman was taken to the hospital with chest pains but it has not been established whether or not his illness was related to the fire. After the fire, Lt. Pratt of DEM's Enforcement Division took 2 samples of the paint-like substances to the University of Rhode Island's Criminology Lab for analysis. The samples were subjected to an extraction procedure test for toxics and shown to have levels of As, Ba, Cd, Se, and Hg below drinking water standards and levels of Cr, Pb, and Ag slightly above drinking water standards but below hazardous waste standards (refer to analysis in Appendix II). Although dumping of oil at the Boulter site was investigated earlier (8/8/80, see Appendix I) no other chemical analysis of wastes or soils is known to have been performed.

Since the fire, either the town or the owner has removed the remaining barrels and waste according to John Quinn, RI DEM. There was no evidence of the barrels, waste, or fire remaining at the site when Barbara Walsh and Susan Hanamoto, Waste Management Branch, U.S. Environmental Protection Agency along with John Quinn, RI DEM inspected the site on 6/10/81 although scattered solid waste was observed. The town has also lined the edge of Curran Road with boulders to prevent access to the site. Current site activity appears to be limited to unauthorized gatherings of local youths and dirt bike riding.

### III. Investigation Results

#### A. Surficial Geology and Hydrology

The surficial deposits on site are poorly sorted glacial sediments containing moderately well rounded cobbles, sands, and silts. The sediments form a kame terrace according to Quinn, et al, 1948. The expected hydraulic conductivity of these sediments ranges from low in the more till-like, poorly sorted areas ( $10^{-7}$  cm/sec) to high in better sorted pockets of sands and gravels (up to  $10^0$  cm/sec). Thus, the potential for subsurface contaminant migration exists although rates may vary. The expected thickness of the glacial sediments is from 50 - 200 ft. (Quinn et al, 1948). Although reported well yields in adjacent areas of glacial sediments exceed 100 gpm, there is no yield data for the private wells on or near the Boulter site. Pump capacities however, do not exceed 6 gpm (Quinn et al, 1948).

Slopes on the site vary considerably from nearly level to nearly vertical due to the past mining operations. The resulting micro-drainage patterns are chaotic. The net drainage however, is into Miller's River at the western boundary of the site. The flood plain of the river appears to be narrow (few 10's of meters) along the section inspected (see map in Trip Report, Appendix V). The only erosion problem observed was minor gullyng of dirt-bike trails especially those parallel to hillslope.

#### B. Bedrock Geology

Although no bedrock outcrop was observed on the site it is described in the literature (Quinn et al, 1948) as sedimentary rock including shales,

sandstones, and conglomerates of Pennsylvanian age. The two units mapped on the Boulter site are the Pondville conglomerate and other Rhode Island formation (southern half) and the Wamsutta formation (northern half). Generally the bedrock is reported to be a low yielding aquifer. Average yield figures given by Quinn, et al, 1948 are 10 gpm for wells in the shale and 3 gpm for wells in the conglomerate.

#### C. Ground Water

Data to precisely define depth to ground water in the upper most glacial sediment, flow rates, and flow direction on the site does not currently exist. If such information is deemed to be necessary in the future, a network of wells and piezometers will have to be installed on the site.

Generally it can be estimated that most ground water flows to the southwest and discharges into Miller's River which is in good hydraulic communication with the surrounding aquifer (glacial sediments). There is probably also discharge from the upper most aquifer (glacial sediments) to the lower conglomerate and shale units. (Johnston and Dickerman, 1974 a & b).

#### D. Water Quality

The MA DEQE sampled 6 water supply wells in the North Attleboro/Cumberland area in late April, 1980 - early July, 1980 (see Site Inspection form map, Appendix IV for locations). Chemical analysis revealed small amounts (microgram/liter) of 1,2 transdichloroethylene, 1,1,1 trichloroethane, trichloroethylene, and tetrachloroethylene (see Appendix III for results of 5 closest wells). Unfortunately a clear connection between these

wells and the Boulter site cannot be drawn. Some of the wells are located up to 1.5 miles from the Boulter site and wells 1 - 4 are upgradient. Wells 5 and 6 (see Site Inspection form map, Appendix IV) are located downgradient but in the Abbott Run drainage basin rather than the Miller's River basin where dumping on the Boulter Farm formerly occurred. If the surface water drainage divide approximates the ground water divide (which is likely in the unconsolidated glacial sediments), then the source of contamination for wells 5 and 6 is probably in the Abbott run drainage area. Although induced flow from the Miller's River basin due to pumping of wells 5 and 6 can't be ruled out, unless analysis of private wells closer to the Boulter Site reveals a connection between the site and types of contamination found by the MA DEQE, it is not likely that the Boulter Farm is the source of the contamination found in water supply wells 5 and 6. The general surface water quality of Abbott Run and its tributaries (including Miller's River) was found to be excellent by Johnston and Dickmann, 1974 (a) (sheet 2).

#### E. Air Quality

No obvious odors or other air quality problems existed on the site at the time of the site inspection nor have any complaints about air quality been received. It is recommended that further analysis of atmospheric conditions and air quality be postponed until the results of soil analysis demonstrate the presence of contaminants which could become airborne.

F. Biota

No signs of vegetative stress or animal injury or death were observed on the site inspection of 6/10/81. Plant growth appeared to be quite vigorous. It is recommended that further investigation of biological stress (color Infra-Red air photo analysis, sampling, etc.) await the outcome of soil and water analysis.

G. Hazards

There is no evidence on the site for any current source of contamination or threat to human health and safety. Any barrels of waste remaining after the fire of 4/12-13/81 have been removed. Any present threats to human health or the environment thus would be due to the possible migration of previously dumped wastes into the soil or groundwater. The severity of any impact on human health or the environment cannot be assessed in the absence of data on the types of wastes dumped at the site. It should be noted that no evidence (odors, vegetative stress residues, etc.) for such contamination was found on this inspection.

If contamination from previous sources remains, then the most direct impact on human health and the environment considering current use is likely to result from drinking contaminated groundwater or by direct contact with contaminated sediments. There may also be some danger to air quality from any contaminated dust raised by dirt bikes. Any impact on surface water is likely to be the result of discharge of contaminated ground waste into surface waters (Miller's River). No current source of direct overland discharge of contaminants into surface waters was observed except for perhaps runoff from extreme rainfall.

Current provisions for security at the site, which consist of boulders placed along Curran Road, seem adequate to prevent vehicular entry and thus further dumping incidents. Access by foot and dirt bike is still possible. Further restriction of access does not seem to be warranted unless any future soil and water analyses reveal the presence of residual contamination.

#### IV. Conclusions

No evidence of any sources of contamination was found during the inspection of the site. There were no barrels, odors, or vegetative stress residues observed. Potential threats to human health and the environment would be from the possible migration of previously dumped wastes into the soil or groundwater. Any hazards would result from direct contact with contaminated soil or surface water, drinking contaminated ground water or breathing contaminated dust raised by motorcycles. Demographic, legal or institutional problems are not anticipated, although according to Mike Frimpter of the U.S.G.S., use of Abbott Run as a public water supply has been a long standing problem between the towns of North Attleboro, MA and Cumberland, RI. Since a definite problem has not been determined, an options analysis discussion would not be appropriate at this time.

#### V. Recommendations

Our recommendation is to have the local water supply wells and Miller's River near the site sampled and analyzed for evidence of contamination and the soil in the immediate vicinity of known past chemical dumping tested for waste residues. The number and location of residential or other wells in the immediate vicinity of the site is unknown. A door-to-door survey may be needed because the Rhode Island Department of Water resources does not maintain a complete inventory of private wells. Further action should await the out-come of the soil and water analyses. Since this is a two town/two state effort, coordination and information sharing must be maintained at all times. There must also be cooperation between Federal, State, and local officials.



APPENDIX I

SELECTED RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
FILE REPORTS AND PHOTOGRAPHS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
DIVISION OF AIR AND HAZARDOUS MATERIALS

Field Investigation Report

Boulter's Farm

Date of Investigation: 8 September 1980

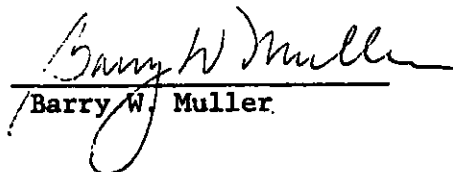
Curran Road

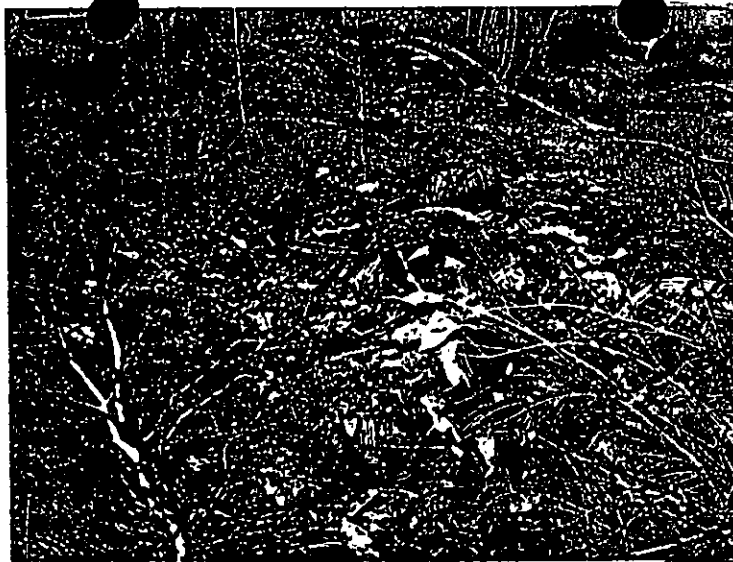
Time of Investigation: 3:30 PM

Cumberland

Received a call from DEM Control at approximately 3:00 PM on 8 September 1980 regarding potential hazardous waste disposal in Cumberland. Accompanied by Sherman Strout, we met Conservation Officer David Tyler on Curran Road in Cumberland. We entered the Boulter property and Mr. Tyler showed us two sites where there is evidence of oil having been dumped. It was impossible to determine the age of the spill but it appeared that the oil had been absorbed by the earth.

Recommended that the sites be sampled to determine precisely what the material is. Upon that determination being made, we must then determine course of action.

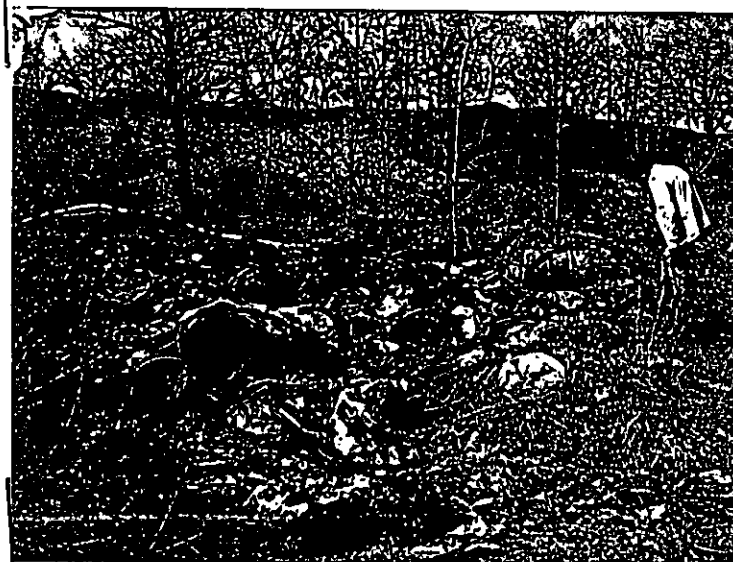
  
Barry W. Muller



Flouther Property 4/13/81



Flouther Property 4/13/81



Flouther Property 4/13/81

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
DIVISION OF AIR AND HAZARDOUS MATERIALS

Field Investigation Report

Boulter's Farm

Curran Road

Cumberland

Date of Investigation: 13 April 1981

Time of Investigation: \_\_\_\_\_

I received a call on 13 April 1981 at 10:00 AM from Sergeant Flannagan of DEM's Enforcement Division regarding a brush fire in Cumberland at which chemical wastes were discovered.

Chief Inspector Sherman Strout and I went to the Valley Falls Fire Department and met with Deputy Chief Burns who advised that at 5:38 PM on 12 April 1981 the brush fire alarm was called in to their headquarters. Upon response, the Department found that barrels were on fire from which orange smoke was being generated. The barrels when burning produced an intense flame and it appeared that initially when doused with water the fire accelerated. However, with further application of water, the fire was extinguished. Lieutenant Pratt of DEM's Enforcement Division was present when Deputy Chief Burns and Chief Inspector Strout and I had this discussion. Lieutenant Pratt informed us that the fire was being investigated by DEM because of its suspicious origin.

Accompanied by Deputy Chief Burns, Mr. Strout and I along with Mr. Pratt went to the site at Boulter's Farm to investigate the barrels. The site is located off Curran Road in Cumberland and the barrels were located 200 feet in next to a body of water. These barrels appeared to be of approximately 25 to 30 in number--two of which could be easily identified as steel barrels and the remainder of fiberboard. By their age, they appeared to have been on the site for a very long time and the material seemed to be a water base paint. The majority of the barrels were burned and there appeared to be pigments of red, orange, yellow and brown. During the investigation we were joined by Sergeant Flannagan. Lieutenant Pratt took two samples from the site and plans to take them to URI's Criminology Laboratory for analysis. If they are unable to identify them, he will take them to the FBI Laboratory.

At 1:23 PM Sergeant Flannagan called to advise me that one of the fireman had been taken to the hospital with chest pains. At this point it is unknown as to whether or not this was related to the fire or smoke generated by the fire in the barrels.

I intend to have John Leo investigate the barrels on 14 April 1981 to determine if they might contain hazardous materials.

  
Barry W. Muller

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
DIVISION OF AIR AND HAZARDOUS MATERIALS

Field Investigation Report

Boulter's Farm

Date of Investigation: 16 April 1981

Curran Road

Cumberland, RI

Accompanied by John Leo, we met with Robert Blauvelt, Chief Engineer, and Russ Knibb, Treatment Plant Superintendent, of the Pawtucket Water Supply. We travelled to Boulter's Farm in order to survey first hand the extent of the site and its potential impacts on groundwater.

The site is a former landfill closed since 1976. There is evidence throughout of barrels having been dumped but they are very old and deteriorated. Most of the material is covered but we did see evidence of old oil tanks (with surrounding fire damage), fiberglass dumping and rusted gasoline tanks.

One point on the site had a small oil sheen on it indicating that oil had been dumped there at one time.

The newest barrels on the site may very well have been those which caught fire. These barrels may be a portion of the barrels referred to in the attached letter. This letter was given to me by Mr. Blauvelt. He said he received it from Frank Stetkiewicz, Cumberland Town Mayor, in the summer of 1980.

At this point, it appears that any barrels buried at the site would have long since deteriorated. Further, there has yet to be demonstrated groundwater pollution. As can be seen from the letter to the Environmental Protection Agency from the Town of North Attleboro, they feel that this site is the cause of their problem.

I recommend this course of action: Advise the Environmental Protection Agency and seek funding through them for a groundwater monitoring program around Boulter's Farm. This may be an interstate problem and such a program might be paid for with Federal funds. We could utilize Pawtucket's extensive mapping survey for well siting.

I do not believe that site cleanup, with perhaps the exception of those barrels burned in last week's fire, would be a feasible option.

  
Barry W. Muller

## APPENDIX II

### PREVIOUS CHEMICAL ANALYSIS OF WASTES



# *R.I. Analytical Laboratories, Inc.*

SPECIALIZING IN ENVIRONMENTAL ANALYSIS

231 ELM STREET  
WARWICK, R.I. 02886

PHONE. (401) 467-2452

## **CERTIFICATE OF ANALYSIS**

REPORT TO: Mr. John Leo  
Dept. of Environmental Management  
75 Davis St.  
Providence, R. I. 02908

DATE RECEIVED 4/18/81  
DATE REPORTED 4/24/81  
PURCHASE ORDER #                       
R.I.A.L. INV. # 4952

SAMPLE DESCRIPTION Two (2) paint sludges from Bolter's Landfill

Per your request, subject samples have been analyzed by our laboratory in accordance with the "Toxicant Extraction Procedure" from Appendix 7 of the R. I. Proposed Hazardous Waste Generator Rules and Regulations. The following are the results of analysis performed on the leachate from this procedure:

<u>PARAMETER</u>	<u>MULTI-COLORED SLUDGE</u>	<u>WHITE SLUDGE</u>
Arsenic	0.026 mg/l	< 0.010 mg/l
Barium	0.8	0.5
Cadmium	< 0.005	< 0.005
Chromium (Total)	0.29	< 0.05
Lead	1.5	0.2
Mercury	< 0.0002	0.0003
Selenium	< 0.01	< 0.01
Silver	< 0.01	0.02

If you have any questions regarding this work or if we may be of further assistance, please contact us.

APPROVED BY                     

*Anthony E. Perrotti*  
Anthony E. Perrotti



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
75 Davis Street - 204 Cannon Building  
Providence, R. I. 02908

20 May 1981

Mr. Paul Poirier  
Building Official  
Town Hall  
45 Broad Street  
Cumberland, RI 02864

Dear Mr. Poirier:

In my letter of 1 May 1981, there was an error in the manner in which the drinking water standards were reported to you. Below is the correct drinking water standards. The concentration levels which would make any waste containing these materials a hazardous waste are reported in the right hand column.

	<u>Drinking Water Standard</u>	<u>Hazardous Waste Level</u>
Arsenic	.05 mg/l	5
Barium	1 mg/l	100
Cadmium	.01 mg/l	1
Chromium	.05 mg/l	5
Lead	.05 mg/l	5
Mercury	.002 mg/l	0.2
Selenium	.01 mg/l	1
Silver	.05 mg/l	5

It was erroneously reported to you that the levels in the right column are the drinking water standards.

I apologize for any confusion this may cause. Please contact me at 277-2808 if you have any questions.

Very truly yours,

  
Barry W. Muller, Prin. Engineer  
Division of Air and Hazardous Materials

BWM/kz



APPENDIX III

PREVIOUS ANALYSIS OF  
WELL WATER

165 PROV. + E. PROV.  
JUL 24 1980



*The Commonwealth of Massachusetts* EAST REGION  
*Department Of Environmental Quality Engineering*

*Lawrence Experiment Station*

*37 Phalluck Street, Lawrence, Massachusetts 01843*

SOURCE A - Courtois (Wall) 3  
SOURCE B - Courtois (Process) 2  
SOURCE C -  
SOURCE D -  
SOURCE E -

COLLECTOR  
DATE COLLECTED  
DATE RECEIVED

NO. ATTLEBORO

Dusseault

July 8, 1980

July 8, 1980

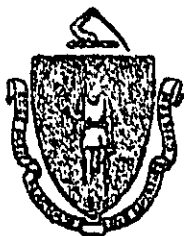
	3 A	2 B	C	D	E
SAMPLE NO.	001833	001834			
DATE ANALYZED	7/16/80	7/16/80			
Ethylene Chloride	nd	nd			
1,1 Dichloroethylene	nd	nd			
1,2 Trachloroethylene	nd	nd			
Chloroform	nd	nd			
1,2 Dichloroethane	nd	nd			
1,1,1 Trichloroethane	nd	nd			
Carbon tetrachloride	nd	nd			
Bromodichloromethane	nd	nd			
Trichloroethylene	nd	nd			
Dibromochloromethane	nd	nd			
Bromoform	nd	nd			
Tetrachloroethylene	nd	nd			

RECEIVED

AUG 22 1980

RI DEPT. OF ENVIRONMENTAL MANAGEMENT  
DIVISION OF AIR & HAZARDOUS MATERIALS

Concentrations reported as micrograms per liter - nd: none detected



*The Commonwealth of Massachusetts*  
*Department Of Environmental Quality Engineering*  
*Lawrence Experiment Station* JUL 2 1980

37 Phalluck Street, Lawrence, Massachusetts 01843  
Courtoise Sand & Gravel (process water) 2 D.L.Q.E. SOUTHEAST REGION

SOURCE A - Courtoise Sand & Gravel (well) 3

SOURCE B - Test Well near Penn Central R.R. 5

SOURCE C -

SOURCE D -

SOURCE E -

COLLECTOR

DATE COLLECTED

DATE RECEIVED

Dunneault

June 10, 1980

June 11, 1980

	2 A 001508	3 B 001509	5 C 001510	D	E
SAMPLE NO.	6/23/80	6/23/80	6/23/80		
DATE ANALYZED	nd	nd	nd		
Methylene Chloride	nd	nd	nd		
1,1 Dichloroethylene	nd	nd	nd		
1,2 Trichloroethylene	0.2	nd	nd		
Chloroform	nd	nd	nd		
1,2 Dichloroethane	nd	nd	nd		
1,1,1 Trichloroethane	nd	nd	nd		
Carbon tetrachloride	nd	nd	nd		
Bromodichloromethane	nd	nd	nd		
Trichloroethylene	nd	nd	nd		
Dibromochloromethane	nd	nd	nd		
Bromoform	nd	nd	nd		
Tetrachloroethylene	nd	nd	nd		
T.O.C. mg/l	---	---	0.9		
RECEIVED					
AUG 22 1980					
RI DEPT. OF ENVIRONMENTAL MANAGEMENT DIVISION OF AIR & HAZARDOUS MATERIALS					

Concentrations reported as micrograms per liter - nd = not detected



*The Commonwealth of Massachusetts*  
*Department Of Environmental Quality Engineering*

*Lawrence Experiment Station*

*37 Phallack Street, Lawrence, Massachusetts 01843*

SOURCE A - G. P. Well near Rt. 295 1

CUMBERLAND, R. I.

SOURCE B -

SOURCE C -

SOURCE D -

SOURCE E -

COLLECTOR

DATE COLLECTED

DATE RECEIVED

~~PROBATION~~

~~JUNE 10, 1980~~

~~JUNE 11, 1980~~

1

A

B

C

D

E

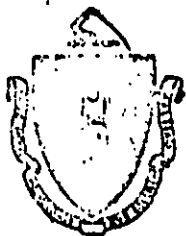
SAMPLE NO.	001507				
DATE ANALYZED	6/20/80				
Methylene Chloride	nd				
1,1 Dichloroethylene	nd				
1,2 Transdichloroethylene	nd				
Chloroform	nd				
1,2 Dichloroethane	nd				
1,1,1 Trichloroethane	0.9				
Carbon tetrachloride	nd				
Bromodichloroethane	nd				
Trichloroethylene	nd				
Dibromochloroethane	nd				
Bromoform	nd				
Tetrachloroethylene	0.9				

RECEIVED

AUG 22 1980

RI DEPT. OF ENVIRONMENTAL MANAGEMENT  
DIVISION OF AIR & HAZARDOUS MATERIALS

Concentrations reported as micrograms per liter - nd - none detected



*The Commonwealth of Massachusetts*  
Department Of Environmental Quality Engineering

Lawrence Experiment Station

37 Shallock Street, Lawrence, Massachusetts 01843

SOURCE A - Test Well #3 (Adamsdale Rd Site) 6

NO. ATTLEBORO

SOURCE B -

COLLECTOR

Howland

SOURCE C -

DATE COLLECTED

May 14, 1980

SOURCE D -

DATE RECEIVED

May 15, 1980

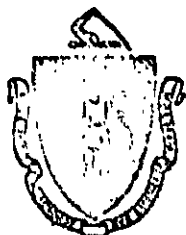
SOURCE E -

	A	B	C	D	E
SAMPLE NO.	COL242				
DATE ANALYZED	5/19/80				
Methylene Chloride	nd				
1,1 Dichloroethylene	nd				
1,2 Dichloroethylene	4.9				
Chloroform	nd				
1,2 Dichloroethane	nd				
1,1,1 Trichloroethane	6.0				
Carbon tetrachloride	nd				
Bromochloroethane	nd				
Trichloroethylene	2.1				
Dibromochloroethane	nd				
Bromoform	nd				
Tetrachloroethylene	nd				
TOC - mgm/l	0.31				

RECEIVED

AUG 21 1980

RI DEPT. OF ENVIRONMENTAL MANAGEMENT  
DIVISION OF AIR & HAZARDOUS MATERIALS



*The Commonwealth of Massachusetts*  
*Department Of Environmental Quality Engineering*  
*Lawrence Experiment Station*

37 Thattuck Street, Lawrence, Massachusetts 01843

SOURCE A - Adamsdale - G. P. Well Site (TEST WELL #2)

NO. ATTLEBORO

SOURCE B -

COLLECTOR

Howland

SOURCE C -

DATE COLLECTED

April 24, 1980

SOURCE D -

DATE RECEIVED

April 24, 1980

SOURCE E -

	<sup>6</sup> A	B	C	D	E
SAMPLE NO.	000779				
DATE ANALYZED	4/25/80				
Ethylene Chloride	nd				
1,1 Dichloroethylene	nd				
1,2 Trichloroethylene	nd				
Chloroform	nd				
1,2 Dichloroethane	nd				
1,1,1 Trichloroethane	7.0				
Carbon tetrachloride	nd				
Bromochloroethane	nd				
Trichloroethylene	4.1				
Dibromochloroethane	nd				
Bromoform	nd				
Tetrachloroethylene	1.1				
TOC mgm/l	1.2				

RECEIVED

AUG 2 1980

DEPT. OF ENVIRONMENTAL MANAGEMENT  
DIVISION OF AIR & HAZARDOUS MATERIALS



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**REGION I**

**J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211**

November 1, 1989

Louis P. Paolino  
2 Randall Road  
North Providence, RI 02904

**RE: Boulter Farm, Cumberland, RI**

Dear Mr. Paolino:

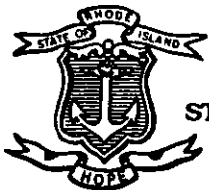
As requested by you, enclosed is the final Screening Site Inspection (SSI) for Boulter Farm, Cumberland, RI. As part of a screening process, the SSI does not represent a final Agency decision.

I appreciate your interest and cooperation during completion of the SSI. If you should have further questions, please call me at (617) 573-9698.

Sincerely,

Deborah J. Pernice  
Superfund Support Section  
Waste Management Division

cc: Carl DeLoi, Chief  
Timothy O'Connor, RI DEM  
File



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DIVISION OF AIR AND HAZARDOUS MATERIALS  
291 Promenade Street  
Providence, R. I. 02908-5767

31 May 1989

Ms. Deborah Pernice  
EPA State Coordinator  
Superfund Support Section (HSS-7)  
Environmental Protection Agency  
Waste Management Division  
JFK Federal Building  
Boston, MA 02203

Dear Deb:

Please find enclosed the Draft Screening Site Inspection on  
Boulter Farm (RID 980672620). Please review this report and provide  
me with your comments.

Very truly yours,

Timothy M. O'Connor, Senior Engineer  
Division of Air and Hazardous Materials

TMO/111

Enclosure

